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METHODS OF DEMONSTRATING THE CIRCULATION IN GENERAL

AS APPLIED TO A STUDY OF THE RENAL CIRCULATION IN PARTICULAR *

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I. INTRODUCTION: SUPERIORITY OF METHODS THAT GIVE EXACT DUPLICATION OF STRUCTURAL RELATIONS AND ARE SUSCEPTIBLE OF PHOTOGRAPHIC ILLUSTRATION

By FRANK HINMAN, M.D.

For demonstration of anatomic structure, the method giving exact duplication is superior to one of approximate reproduction, and the ability to present proof of this is an invaluable asset. For this reason, photographic illustration of specimens is superior to the most beautiful drawing and, now that we have color photography, the most life-like painting. Diagrammatic portraiture is often essential to clear presentation, but for proof of a fact falls short of a true likeness of the original, if the original itself is not available.

As long ago as 1842, Bowman made the clear-cut statement: "All the blood of the renal artery (with the exception of a small quantity distributed to the capsule, surrounding fat and the coats of the larger vessels) enters the capillary tufts of the malpighian bodies; thence it passes into the capillary plexus surrounding the uriniferous tubes and it finally leaves the organ through the branches of the renal vein." But this fact, now well established, was based on personal observations, and a marked difference of views concerning its minute arrangement arose and has existed up to the present. In 1893, for instance, three views of the origin of the arteriolae rectae were found current by Golebew;[1] and he himself, after meritorious and original investigation, recognized and illustrated arteriolae rectae verae and spuriae.[2] Huber,[3] in 1907, by improved modifications of celloidin injection methods, discovered the error of observation on the part of Golebew, for which the silver nitrate method used was responsible, because by it straight venules were injected as well as arterioles. Huber was unable to demonstrate true arteriolae rectae, and yet most textbooks picture them. Even the pretentious Encyclopédie française d'urologie[4] describes them as an established fact, citing, for authority, Virchow, in 1857, and the discredited Golebew, although Huber's work is familiar to them, as his denial of the existence of "artères droites vraies" is mentioned. Brödel[5] has pictured several arteriolae rectae verae (the nomenclature of which is attacked[6]). This illustration, while wonderful from a diagrammatic standpoint, and a work of art, gives a vague conception of anatomic structure compared to the accurate duplication of injection methods which demonstrate differently the numerous parallel branches of straight vessels of uniform caliber arranged almost like the tufts of bristles of a brush (Fig. 1). Even Huber's[7] illustrations are inadequate, and disappoint in actual reproduction.

The merit of an exhibit of a study of the renal circulation by the injection methods to be described, presented at St. Louis in 1922, lay not in discovery or originality so much as in the manner of presentation, by which actual duplication of structure was demonstrated with original specimens and photographic illustrations. Truthful representation established a scientific value otherwise wanting. The findings will be presented elsewhere. They confirm those of Huber. The object of the present papers is a presentation in some detail of the methods. They can be applied fruitfully to the study of other anatomic parts. Marshall[8] has published the results obtained in a study of the circulation of the teeth. Terry[9] and Delemere investigated the thyroid, and others of our associates are obtaining excellent results with them in the study of the brain. Their general application to anatomic teaching would be invaluable. Numerous inquiries since the St. Louis Exhibit indicate general interest, and this constitutes the justification for the publication of dry technical details.

The celloidin injection method has certain advantages over all others for exact duplication of gross detail, but is inferior for minute capillary reproduction to the dye injection method. Dr. Morison is responsible for the perfection of details in the use of the former and Dr. Lee-Brown of the latter, and each method, therefore, is presented separately by them. The barium sulphate

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1. Golebew: Sur les vaisseaux sanguins du rein des mammifères et de l'homme, Internat. Monatschr. f. Anat. u. Physiol. **10**, 1893.

2. The arteriolae rectae verae are the straight vessels supplying medullary areas arising, supposedly, directly from arcuate or interlobar branches; the arteriolae rectae spuriae are straight vessels to the same areas arising from the efferent branch of glomeruli at or near the corticomedullary zone.

3. Huber, G. C.: The Arteriolae Rectae of the Mammalian Kidney, Am. J. Anat. **61**:391-406, 1906-1907.

4. Encyclopédie française d'urologie **1**:455, 456, 1914.

5. Brödel, Max, in Kelly and Burnam: Diseases of the Kidneys, Ureters and Bladder, Figure 101, New York, D. Appleton & Co., 1914.

6. Kelly and Burnam's textbook, p. 162.

7. Huber: Am. J. Anat. **6**:400, 401, 403, 1906-1907, Figures 2, 3 and 4.

8. Marshall, J. A.: Method for Preparing Blue Celluloid Injection Material, J. A. M. A. **80**:181 (Jan. 20) 1923.

9. Terry, W. L.: Radium Emanations in Exophthalmic Goiter—Blood Vessels of Adenomas of Thyroid, J. A. M. A. **79**:1 (July 1) 1922.

roentgenographic study of circulatory arrangement and changes is ideal when preservation of the pathologic or anatomic specimen and subsequent histologic study is desired. Certain details of preparation of specimens for injection and the particularly useful methods of mounting and preservation of specimens afterward, which are essential to full success by any one of the three methods, are outlined for all in the section on celloidin method, and the dye injection and roentgenographic stereopticon methods, with only brief reference to these important details, jointly presented in the last section. The reciprocal value of all three methods is obvious, but their practical correlation belongs to the presentation of the study as a whole.

It may be said that, in a study of the circulation, the choice of method is worthy of care and attention. The one giving duplication of structure is superior to one requiring interpretation, and the correlation and confirmation of the three standard methods which have been used permits of demonstration of gross and minute structure with original photographic duplicates unequaled by approximate or diagrammatic reproduction. Accurate and permanent mounting of specimens

Fig. 1.—Demonstration of arteriolae rectae by dye injection: Such preparations are thick, so that when studied with a binocular microscope, which brings out three dimensions, exact relationship of vessels to each other is seen, and this fact may be permanently recorded by stereopticon photography.

enhances their value, preserves the record and promotes teaching. The methods are applicable to a study of circulation in any part of the body, and are particularly adaptable to teaching. For these reasons the following details as applied to the kidney are presented.

II. TECHNICAL DETAILS AND DIFFICULTIES OF CELLOIDIN INJECTION METHOD, WITH A DISCUSSION OF THE MOUNTING AND PRESERVATION OF SPECIMENS

By Duncan M. Morison, M.D.

Celluloid corrosion and allied methods have long been employed for the demonstration of vascular architecture. In 1882, Schiefferdecker [10] described an injection mass of celloidin in ether colored by asphaltum, with which he was able to demonstrate the coarse as well as the finest arterial distribution. Hochstetter,[11] in 1886, put forward a modification of this mass by adding kaolin to prevent shrinkage of the cast. As coloring agents, cobalt blue, chrome yellow and cinnabar are mentioned. The mass is suited for the preparation of specimens showing gross relationships. Flint [12] subsequently added Prussian blue as a coloring agent in fine injections, and Victoria blue for coarse preparations, which could then be kept dry without shrinking.

In 1904, Krassuskaja [13] introduced a corrosion mass consisting of photoxylin or celloidin and camphor in acetone. As dyes he employed cinnabar for red, Berlin blue for blue, chrome yellow for yellow, and asphalt for black. Huber has since slightly altered Krassuskaja's method and substituted alkanin—a resin dye. The celluloid corrosion method here described was based on that of Krassuskaja and Huber. During the course of our work, various modifications were added which tend to simplify the technic of injection and promote a wider application of the method. In virtue of possible assistance to others, a somewhat detailed description of the method is submitted.

The injection mass consists of a solution of celluloid in acetone. As acetone readily combines with water, the celluloid is rapidly precipitated out of solution whenever water is encountered. Thus, by injecting the celluloid solution into cavities or the lumen of blood vessels where moisture is present, one soon obtains a deposition of celluloid, forming a cast. When the parenchyma of an organ whose cavity or blood vessels have been so injected is macerated, the celluloid cast is revealed.

MATERIALS FOR INJECTION MASS

As recommended by Huber, who modified the technic described by Krassuskaja, a stock solution was at first employed consisting of chemically pure acetone, 600 c.c.; celloidin, 30 gm., and camphor, 20 gm. Later, thinner solutions of celluloid were used with success, when the injection of capillaries was sought. The minimum effective dilution arrived at was 3 parts of celluloid in 100 parts of acetone.

For the preparation of specimens showing gross structure, heavier solutions were used, i. e., 10-part and 20-part solutions.

As celloidin (Schering) or bioloid (Bausch & Lomb) or parlodion (Du Pont) are somewhat expensive and not always readily obtained, old roentgen-ray films were experimentally substituted in the same proportions and gave just as good results in the preparation of coarser specimens. For fine injections, however, the solutions of roentgen-ray films were not satisfactory.

PREPARATION OF THE INJECTION SOLUTIONS

It is advisable to make up solutions of varying strength in bulk. Those that have proved the most useful are:

For fine injections, i. e., to show detailed structure, as (*a*) glomeruli or (*b*) capillaries:

A. Acetone, 100 c.c.; celloidin, 3 gm.; camphor, 2 gm.
B. Acetone, 100 c.c.; celloidin, 4 gm.; camphor, 3 gm.

For coarse injections, i. e., to show gross structure, as (*a*) main vascular trunks, or (*b*) renal pelvis and ureter:

C. Acetone, 100 c.c.; roentgen-ray films, 10 gm.; camphor, 8 gm.
D. Acetone, 100 c.c.; roentgen-ray films, 20 gm.; camphor, 15 gm.

10. Schiefferdecker: Ueber die Verwendung des celloidins in der anatomischen Technik, 2, Als Injectionsmasse, Arch. f. Anat. und Phys., 1882, p. 201.
11. Hochstetter, F.: Ueber eine Modifikation der Schiefferdeckerschen Celloidin Korrosionsmasse, Anat. Anz., 1886, pp. 51-52.
12. Flint, J. M.: The Ducts of the Human Submaxillary Gland, Am. J. Anat. 1:269-295, 1901-1902.
13. Krassuskaja, A., as reviewed by Stieda: Ergebn. d. Anat. u. Entwcklngsgesch. 13:521, 1903.

The roentgen-ray films are thoroughly washed to remove emulsion, cut into suitable strips, and dried. The celloidin, as supplied in bottles, should also be thoroughly dried before use.

To the acetone, chemically pure, the celloidin or roentgen-ray films are added, and the container is placed in a mechanical shaker till completely dissolved. The celloidin in the 3-part and 4-part solutions dissolves in about three hours. The roentgen-ray films do not completely go into solution for twelve hours or so. At the conclusion of this stage, the camphor is added. Camphor makes the celloidin less brittle and somewhat more translucent. To insure more complete penetration of the thinner solutions, it is advisable to filter these. A suction filter may be employed, and hastens the process. During filtration, the solutions should be protected from evaporation.

APPARATUS

From the stock containers, the solutions are transferred as required to pressure bottles of 250 c.c. capacity (Fig. 2). The bottles have wide mouths with rubber stoppers, through which two glass tubes pass, one reaching only through the thickness of the stopper, the other well down almost to the bottom of the bottle. The glass tubes are bent for convenience to the horizontal just after emerging from the stopper, and on each is slipped a short length of rubber tubing carrying a connecting glass tube. The application of small screw clamps on these two portions of rubber tubing renders the bottle air tight. To insure against "blow-outs" at high pressures, it is necessary to have the rubber stoppers of the bottles thoroughly fixed down by string or wire.

It is advisable to have a number of these bottles filled, ready for use. If care is taken in their preparation, each bottle will comprise an air tight unit when the clamps are closed, and the contained solution remains good for many months.

Coloring Agents.—The pigments employed to color the injection mass are given in the accompanying table:

Coloring Agents Employed

Pigment	Color	Preparations for Which Suited
Cobalt blue	Blue	Gross
Chrome yellow	Yellow	Gross
Cinnabar	Red	Gross
Victoria blue	Blue	Gross (specimen may be preserved dry)
Berlin blue	Blue	Gross and fine
Prussian blue	Blue	Gross and fine
Asphalt	Black	Gross and fine
Alkanin *	Red	Gross and fine
Crystal violet brilliant green	Blue	Gross and fine

*Fettlosliches Roth, Grueber, also written "Alcanin."

With the exception of the last three, the pigments are not soluble in the injection mass, and, being held in suspension, tend to make the resultant specimen friable. As recommended by Huber, alkanin is probably the best coloring agent to employ when a capillary injection is sought. It is a resin dye soluble in acetone and unaffected by strong hydrochloric acid. A small portion of the material is ground up in a mortar, and acetone is added. About 50 c.c. of this concentrated coloring solution is sufficient to color a large quantity of the injection mass, the amount of dye added depending on the depth of color required. For the differential demonstration of fine structures when a thin solution of celluloid is used, a relatively larger quantity of dye is required than when the heavier injection mass is employed. It will be found more convenient to add the dye solution directly to the celluloid solution in the 250 c.c. pressure bottles. Depth of color can thus be more easily regulated to immediate requirements. Marshall has obtained pleasing results from crystal violet-brilliant green, using a 5 per cent. solution of each in acetone.

Cannulas.—A stock of glass cannulas of all sizes and also of connecting tubes is essential.

Power for Injections.—This was obtained from a supply of compressed air, pressure being regulated by a mercury manometer attached to a Woulfe bottle (Fig. 2).

Pressures Employed.—These were:

A. For preparation of specimens to show gross structure:
   1. Arterial, from 200 to 300 mm. of mercury.
   2. Venous, from 80 to 100 mm. of mercury.
   3. Renal pelvis, from 50 to 80 mm. of mercury.

B. For preparation of specimens to show fine structure:
   1. Arterial, from 350 to 600 mm. of mercury.
   2. Venous, from 100 to 200 mm. of mercury.

Material for Injection.—The organ or specimen to be injected should be fresh, though a stay of from twelve to forty-eight hours in the icechest does not materially

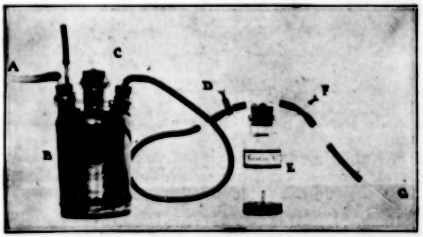

Fig. 2.—Injection apparatus: Woulfe bottle (*B*) with mercury manometer (*C*) connected by rubber tubing to pressure bottle (*B*). (To facilitate demonstration, only a small amount of celluloid solution colored with alkanin has been left in the pressure bottle.) The pressure bottle as pictured is air tight, and constitutes a convenient unit for temporary storage or immediate use. Air pressure enters by tube *A*; *D*, proximal screw clamp; *F*, distal screw clamp; *G*, cannula.

influence the production of a gross preparation. Experimentation demonstrated the advisability of a thorough irrigation of the specimen with physiologic sodium chlorid solution before proceeding to injection. The irrigation is carried out through the arterial side, and is considered sufficient when the outflow from the vein comes clear. A pressure bottle fitted up in the same manner as already described, but of larger size, may conveniently be used for the salt solution.

The benefits of this preliminary procedure are that:

1. It removes blood clot.
2. It promotes more rapid precipitation of the celluloid out of the acetone solution.
3. Better casts are obtained. The larger vessels in the corrosion specimens show more cylindric trunks.
4. Torn or divided collateral vessels can be easily detected by leakage of the fluid and ligated, thus establishing a closed circuit.

Two important factors may here be emphasized which are essential in the production of good corrosion specimens: (*a*) The system being injected should present a closed circuit. (*b*) No air should gain entrance into the system during injection. As just stated, one

should take the opportunity afforded by the saline irrigation to tie off any leaks or places of doubtful oozing before proceeding to employ the injection solution. Entrance of air is best avoided by inserting the selected cannula into the outflow tube of the pressure bottle and

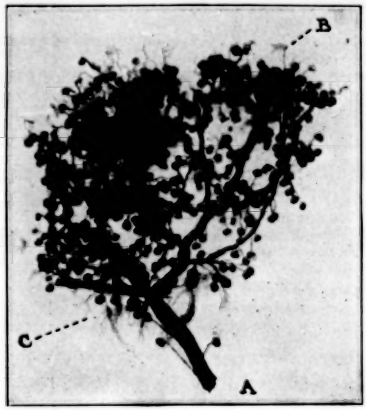

Fig. 3.—Glomeruli with their efferent capillaries, as shown in a fine celluloid injection: Terminal portion of an arcuate artery (*A*) breaking up into interlobular branches bearing clusters of glomeruli. The efferent glomerular capillaries of subcapsular type (*B*) as well as those of medullary type (arteriolae rectae) are clearly demonstrated.

then connecting up to the air pressure system. Raising the air pressure and removing the proximal screw clamp sets up a definite positive pressure within the bottle. The distal clamp is then sufficiently released to allow all air to escape, and closed down again when pure contents reach the tip of the cannula. The injection system is now free of air, and the cannula is ready for insertion. A single knot of the ligature is usually adequate to maintain the cannula in place, and facilitates more rapid change when solutions of different densities are used, as a thick following a thin. Pressure should be run up to the required height before the distal clamp is released and injection begun. Better results are obtained when the full pressure to be used is thrown into the organ as quickly as possible (Huber).

To obtain specimens of fine distributions, such as capillaries (Fig. 3), full pressure should be maintained for at least ten or fifteen minutes, and then the proximal screw clamp closed off. A positive pressure is thus kept up within the pressure bottle, and it may now be disconnected from the air pressure system, and removed along with the specimen to a convenient place where the process of injection and setting may continue to completion. In the case of gross preparations (Fig. 4), full pressure should be maintained for thirty minutes and longer whenever possible, and then the positive pressure for from twelve to twenty-four hours.

"DOUBLE INJECTION"

When it is desired to demonstrate large vascular trunks together with their fine ramifications, two solutions are necessary, a thin (4 part celloidin) solution followed by a heavy (10 or 20 part roentgen-ray) solution. The 4-part solution is run in for about five minutes, and injects the finer branches. The cannula is then withdrawn and attached to an injection bottle containing 10 or 20 part solution. On reinserting the cannula into the same vessel, one should gently express, from the main branches of the specimen, all excess of the 4-part solution before tightening the ligature around the neck of the cannula. This allows the heavier solution to penetrate farther, and at the same time minimizes the possibility of air entry during the double injection. As this procedure combines gross structure with fine, the pressures employed are as tabulated for the respective types. When color is desired, the thin solution should be the much more deeply tinted. Fine ramifications, in the finished specimen, will then assume greater contrast.

For the combination of gross and fine structure, the foregoing double injection method insures a celluloid preparation which is resilient and strong, capable of maintaining the original configuration of the specimen and consequently more instructive than those usually evolved by single injection (Fig. 5).

"Setting."—The time required for this varies. When a fine injection has been made in order to study the capillaries, only one hour or so need be allowed before proceeding with corrosion; but with coarser preparations, a delay of from twelve to twenty-four hours is necessary. During this period of "setting," it is advantageous to submerge the injected specimen in water.

CORROSION OR DIGESTION

The tissues may be removed from an injected specimen by pepsin hydrochloric digestion fluid or hydrochloric acid; the latter is the more rapid method; 1:3,000 pepsin (Sharp and Dohme) dissolved in from 0.3 to 0.5 per cent. hydrochloric acid constitutes the digesting fluid, and the process is complete in three or four days. A 75 per cent. solution of hydrochloric

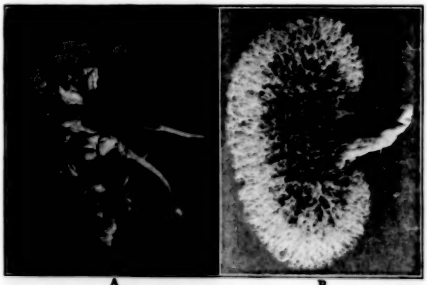

Fig. 4.—Coarse celluloid preparations: The specimens are from kidneys of the pig. The ureters were injected at the same time, and show that the renal pelvis of the pig somewhat resembles the human type. *A*, arterial distribution (solution colored); *B*, venous distribution (solution uncolored). The injection solution employed for *B* was a trifle thinner than for *A*; hence the better filling of the finer venous radicles and consequent obscuring in this specimen of the renal pelvis (colored).

acid is advocated by many, and no disadvantage has been encountered in using the concentrated acid. The commercial article acts equally well.

Specimens after injection and setting should be totally immersed in the acid. Subsequent study (microscopic) of finely injected preparations is facilitated if free hand sections of the organ are made and these placed in the macerating fluid.

Specimens are kept in the acid from twelve to twenty-eight hours. It is necessary to have complete digestion by the acid; otherwise, thorough removal of all parenchymatous débris from the finer structures is not easy, and any persistent attempt to do so endangers the integrity of the specimen. Prolonged immersion in acid tends to render the celluloid more friable, and should be avoided.

Fig. 5.—The complete arterial circulation of a 6½ month human fetus (female) from the level of the diaphragm downward. The superior mesenteric artery was tied off. The preparation was obtained by employing the "double injection" technic: *SM*, superior mesenteric artery (origin); *R*, main renal arteries with their subdivisions as far as the interlobular branches; *IM*, inferior mesenteric artery; *U*, umbilical trunks. The vessels of the pelvic contents are unfortunately somewhat obscured, but those of the lower extremities can be identified even to the small interdigital branches. The introduction of relatively more dye into the thin injection solution causes the finer ramifications to stand out in contrast to the main trunks.

"WASHING OUT"

Removal of the macerated tissue from the celluloid cast is easily accomplished by a stream of water. In the finer preparations, the "washing" has been carried out under observation (binocular microscope). A fine drawn out cannula, attached by a convenient length of rubber tubing to a pressure bottle containing water, is allowed to play with a gentle intermittent drop flow on the specimen as it lies in a watch glass or Petri dish covered by water. By this means it is easy to detect and prevent any breaking up or mutilation of the details of a specimen during removal of the digested parenchyma.

PRESERVATION OF SPECIMENS

Corrosion preparations are best preserved in fluid. Drying tends to wither them and remove that pleasing semitranslucent appearance. This is particularly noticeable with preparations having differential color.

A solution that has proved satisfactory consists of distilled water, 100 c.c.; formaldehyd solution, 2 c.c.; glycerin, 20 c.c. To insure a clear, air-free mounting solution, the water and glycerin should be boiled for ten or fifteen minutes, and the formaldehyd added as the solution cools. The solution is then filtered till clear, and used only when thoroughly chilled. Specimens may be mounted in ordinary rectangular glass jars, but look extremely well under large watch glasses. The technic of the watch glass method of mounting has been described in detail by Day.[14] It is a comparatively simple procedure, and seems particularly suited for the exhibition of celluloid corrosion preparations. When one is employing this method, it is essential to have the mounting solution prepared as above and free of air; otherwise, small air bubbles are very prone to appear from twelve to twenty-four hours after an apparently perfect mount has been effected, and call for a complete remounting of the specimen. Another contributing factor to delayed air entry is insufficient grinding down of the edges of the watch glasses. It is better to employ two grades of carborundum powder: first, a coarse; then, a fine. The process of grinding should continue till the entire thickness of the watch glass is involved. This insures a broader and more perfect apposition of the watch glass to the surface of the plate glass. If plate glass squares with beveled edges are used, and the prescribed final cardboard framing of the mount (Day) is omitted, the process is materially abbreviated, and appearances are enhanced. Old photographic glass plates can easily be utilized for this purpose (Fig. 6). To cement the watch glasses to the plate glass, we have employed turpentine black asphaltum, and also filtered Canada balsam. The latter is better suited for small mounts. The turpentine asphalt can be readily applied with a small paint brush.

The small microscopic preparations may be preserved in gelatin, in specially constructed containers, as devised by Shore.[15] The results are most attractive, but, unfortunately, absorb much time in the making, and gelatin sooner or later tends to vacuolate. A quicker, almost more efficient way is to combine these two methods and use small sized watch glasses on 2 by 3-inch slides, with the foregoing preserving fluid and, when necessary, just sufficient gelatin to maintain the specimen in place.

Fig. 6.—Preservation of small preparations by the watch glass method: Portion of arcuate artery (human) prepared by celluloid corrosion mounted under a watch glass on 4 by 2½ inch glass plate (old lantern slide). The edges of the plate have been smoothed and beveled by carborundum powder. The preserving fluid is that which is recommended in the text. The watch glass is "ringed" in place by turpentine black asphaltum. Preparations so mounted can be conveniently studied under the binocular microscope.

14. Day, L. E.: An Improved Method of Mounting Museum Specimens, Tr. Chicago Path. Soc. **9**: 106-111.
15. Shore, T. H. G.: A Method of Mounting Flat Pathological and Other Specimens in Gelatin, J. Path. & Bacteriol. **24**: 140-144 (April) 1921.

CONCLUSIONS

As an injection method, celluloid corrosion possesses these advantages:

1. The gross architecture as well as the minutest ramification of the vascular tree can be demonstrated.

2. Differentiation of structure can be clearly shown by the introduction of a dye.

3. The specimens prepared to show gross structure are not brittle or easily distorted. They are permanent, light and resilient, and can be handled; they are excellent, therefore, for demonstration purposes.

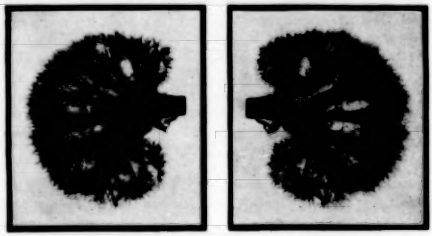

Fig. 7.—Roentgenogram of the arterial distribution in a sheep's kidney, made with a sodium bromid suspension of barium sulphate.

4. The ramifications of vessels, no matter how tortuous or numerous, can be easily traced throughout to their ultimate distributions.

III TECHNIC OF BARIUM SULPHATE AND INTRAVASCULAR DYE INJECTION METHODS

By R. K. Lee-Brown, M.B.

In this description will be set forth the technic of the intravascular employment of substances impervious to roentgen rays for the demonstration of the macroscopic structure of the circulation, and of dyes in aqueous solutions for the microscopic detail, together with a discussion of their respective advantages.

It is essential that all specimens prior to injection be subjected to a preparatory treatment, which, with the addition of a few minor points, is identical with that already described for the celloidin method. In cases in which a very fine degree of injection is desired, much better results are invariably obtained if the specimen during the preliminary irrigation and injection is kept at body temperature in a water bath. This procedure is rendered absolutely necessary when gelatin is employed as a suspending agent in the injection mass. After complete irrigation, the saline solution is replaced by the solution to be injected, during which procedure it is essential that all air bubbles be eliminated.

The completeness of injection will be governed by several factors, such as the viscosity of the solution, the nature of the specimen and the pressure employed. With human kidneys and an aqueous Berlin blue solution, a pressure of from 250 to 300 mm. of mercury will give a complete glomerular injection. The pressure may be increased beyond this, but within limitations, as a too high one will drive the solution through the arterial system and result in an associated venous injection.

Barium sulphate suspensions generally require slightly higher pressures, depending on their viscosity. When a simple venous injection is desired, much lower pressures are employed than on the arterial side; for instance, 100 mm. of mercury will be found ample for this purpose.

A. THE ROENTGEN-RAY STEREOPTICON

For the demonstration of specific vascular systems, numerous substances impermeable to roentgen rays have been employed as injection masses; of these substances, mercury, bismuth subnitrate and barium sulphate seem to have been most generally favored. Stiles,[16] in 1897, and Liek,[17] at a later date, both used a direct injection of metallic mercury. The substances most employed, however, were suspensions of barium sulphate or bismuth subnitrate. Beck [18] used a suspension of bismuth subnitrate in petrolatum, which produces a very viscid mixture necessitating the employment of a syringe for injection. This feature is rather undesirable, as it is preferable for comparative purposes to have the injections made under a standard regulated pressure which should be as low as possible. Katzenstein,[19] Liek and Sampson [20] used bismuth gelatin masses. The latter used bismuth subnitrate for demonstrating the circulation of the uterus. He recommends the employment of some substance impervious to roentgen rays, suspended in a 15 per cent. gelatin solution.

Gross [21] used barium sulphate in place of bismuth, as the former is in a finer state of subdivision. He soaks 100 gm. of gelatin in 500 c.c. of distilled water for two hours, filters, and adds 500 c.c. of a heavy suspension of barium sulphate, together with a crystal of thymol, and then allows the mixture to cool.

During our investigations, bismuth subnitrate and barium sulphate were employed in various forms of suspension. Barium sulphate is to be preferred for reasons already pointed out by Gross. In cases in which only a fine degree of injection is desired and immediate roentgenography is possible, an aqueous suspension of barium sulphate was found satisfactory, as by this pro-

Fig. 8.—Roentgenogram of the arterial distribution in the kidneys of a monkey, made through the aorta by means of a barium sulphate gelatin mass.

cedure the technic is considerably simplified, less pressure is required, and the chance of the mass "setting" before injection is eliminated. If, however, a considerable

16. Stiles, H. J.: Skiagraphy After Injection of the Blood Vessels with Mercury, J. Anat. Phys. **32**: 83-91, 1897.

17. Liek: Ein weiterer experimenteller Beitrag zur Frage des arteriellen Collateralkreislauf der Niere, Arch. f. klin. Chir. **106**: 435, 1915.

18. Beck: The Stereoscopic Radiograph as an Aid to the Surgeon, Surg., Gynec. & Obst. **12**, 1911.

19. Katzenstein: Ueber die Möglichkeit der Ausbildung eines arteriellen Collateralkreislaufs der Niere, Berl. klin. Wchnschr., 1911, No. 36.

20. Sampson: The Blood Supply of Uterine Myomata, Surg., Gynec. & Obst. **14**, 1912.

21. Gross: Studies on the Circulation of the Kidney in Relation to Architecture and Function of the Organ in Health and Disease, J. M. Res. **36**: 327-335 (July) 1917.

interval must elapse before roentgenography is possible, or if there are vessels of large caliber being injected, barium sulphate in aqueous solution will deposit after a time, thereby spoiling the injection for accurate roentgenography. In order to overcome this objection, a mass was devised, which, while retaining the same simplicity of technic, was found on trial to give eminently satisfactory results. This mass consists of a thin suspension of barium sulphate in a 50 per cent. aqueous solution of sodium bromid. Barium sulphate,

Fig. 9.—Low power photomicrograph of the renal venous system, demonstrating the venae rectae. Injection made with an aqueous solution of Berlin blue. (Compare with Figure 1, arteriolae rectae.)

while not necessary so far as the roentgenography is concerned, is added for two reasons:

1. The degree of capillary injection can be controlled by increasing or decreasing the amount in suspension. Pure solution of sodium bromid passes over too readily into the venous system.

2. By its addition, the progress of the injection can be followed (white suspension), and any leaks in the system at the time of injection readily detected.

As in the case of gross gelatin injection, the barium sulphate after injection is not kept long in uniform suspension, but this is of no consequence as the sodium bromid solution casts the required even shadow. Figure 7 is the reproduction of a roentgenographic picture of the arterial distribution in a sheep's kidney obtained by this method.

If repeated roentgenograms of a given specimen are required over a long period of time, however, better results are obtained by a gelatin suspension of barium sulphate; and the following, while simply a modification of many methods described by others, has proved itself very satisfactory.

1. A good quality sheet gelatin is cut into strips and dissolved in distilled water to make a 10 per cent. solution.

2. A quantity of barium sulphate is taken and thoroughly pulverized with a pestle and mortar, after which water is added till a suspension is formed having a consistency equal to that of thick cream. Equal parts of 1 and 2 are now taken, well mixed and used as such.

For the preservation of these gelatin preparations for emergency use, numerous substances have been added and a stock material kept in an icechest. By this means, some success may be obtained; but, for the best results, it is preferable to prepare the mass immediately before its employment. In all cases in which any suspension in gelatin is being used, both the apparatus and the tissue being injected must be kept in a water bath at a temperature just bearable to the hand. If the temperature is allowed to fall much below this, great difficulty will be experienced in getting a complete penetration of the vascular system. Following injection, the vessels are tied off and the specimen chilled as quickly as possible, thereby preventing any noticeable depositing of the barium sulphate, after which it may be placed in 10 per cent. solution of formaldehyd, which will tend further to set the gelatin and preserve the tissue indefinitely.

There is much to be said in favor of the results obtained by this method, and Figure 8 is a good example showing the macroscopic arterial distribution in the kidneys of a monkey. More detailed information may be obtained by taking stereoscopic roentgenograms of such a preparation. The relationship of the individual vessels may then be readily seen in three dimensions (Fig. 8). When photographic reproduction of a coarse vascular distribution is desired, the results obtained by this technic are probably clearer than those produced by any other method.

The advantages of the roentgen-ray stereopticon injection method may be thus summed up:

1. The technic is simple.
2. The results are clear.
3. Stereoscopic study demonstrates clearly the vascular relationships, both deep and superficial.
4. The specimen, after injection, may be preserved as a museum specimen or a portion sectioned for subsequent histologic study.

The sodium bromid suspension has a distinct advantage here in that the entire mass may be worked out of the vascular system after roentgenography, if desired, leaving an unimpaired specimen.

Fig. 10.—High power photomicrograph of a glomerulus, showing afferent and efferent vessels. The minuteness of capillary injection and complete absence of any diffusion may be readily seen. Detailed relationship may be obtained on viewing such sections under the binocular stereoscopic microscope. Injection made with an aqueous solution of Berlin blue.

B. INTRAVASCULAR INJECTION OF DYES IN AQUEOUS SOLUTIONS AND GELATIN MASSES

For the demonstration of the capillary distribution, various dyes have been used in both aqueous and gelatin solutions. After an experimental trial, dyes in aqueous solutions have been found superior to those in gelatin masses, as the technic with the former is greatly simplified and the results obtained are better. A mass

differing from these has been suggested by Müller,[22] who recommends a mixture of 1 part glue with a not too concentrated solution of Berlin blue.

The three dyes found to be the most efficacious for injection purposes were silver nitrate, carmin and Berlin or Prussian blue.

Silver nitrate may be employed in strengths varying from 0.25 to 1 per cent. in distilled water. The injection has to be made quickly if much pressure is used, as the silver nitrate has a coagulating action on the proteins of the vessel walls, causing a loss of elasticity and a consequent liability to rupture. Following injection, which is maintained for two minutes, the silver nitrate is washed out of the lumen of the vessels with 10 per cent. solution of formaldehyd, and the specimen put in a similar solution for twenty-four hours. Sections are then cut and exposed to strong sunlight till the silver in the vessel walls is reduced, after which they are cleared and viewed in the usual manner. This method, while strongly recommending itself from the point of view of simplicity, has two serious defects: (*a*) the coagulating action on proteins, and (*b*) slight diffusibility through the smaller vessels.

Carmin, while recommended in the literature as being practically the equal of Berlin blue, failed to substantiate this claim in our hands. It may be used in aqueous, glycerin or gelatin solutions,[23] but whichever way is selected, its preliminary preparation is comparatively complicated, and much time and material may be wasted before a satisfactory result is obtained. In addition to this, there is always a tendency for a slight diffusion to occur in the capillaries, which is enough to spoil a clear cut definition of these vessels, which may be so readily and beautifully obtained by Berlin blue.

Berlin blue, like carmin, may be employed in various suspensions; but, for the demonstration of the capillary circulation, the aqueous suspension is the one *par excellence*. This may be prepared by simply making a 2 per cent. solution of soluble Berlin blue (or soluble Prussian blue, chemically pure) in distilled water. The solution may be injected without any further preparation, and will be found perfectly satisfactory.

The specimen, after injection, is:

(*a*) Immersed in 10 per cent. solution of formaldehyd for twenty-four hours.
(*b*) Dehydrated in increasing grades of alcohol to acetone.
(*c*) Cleaned in xylene.
(*d*) Embedded in paraffin.
(*e*) Sectioned.
(*f*) Cleared of paraffin in xylene.
(*g*) Mounted in Canada balsam.

Figures 9 and 10 illustrate low and high power photomicrographs of the completeness of injection readily obtained by this method.

The following advantages are presented by this particular solution:

1. Complete injection of a vascular system to the finest capillaries may be obtained without the slightest diffusion.
2. Its preparation is the simplest possible.
3. The pressure required for complete injection is a minimum.
4. It is chemically inert, having no action on the tissue, such as the coagulation produced by silver nitrate.
5. It is not affected by any of the reagents subsequently employed.
6. Splendid contrast stain may be obtained when employed together with carmin or silver nitrate.
7. The likelihood of distortion, which occasionally occurs with the celloidin method, is eliminated.

22. Müller, W.: Injectionsmassen von Thiersch und N. Müller, Archiv. f. mik. Anat., 1865, p. 150.
23. Lee, A. B.: The Microtomist's Vade-Mecum, Ed. 7, 1913, pp. 258-261.

MULTIPLE TUBERCULOUS BONE LESIONS COMPLICATING CHRONIC PULMONARY TUBERCULOSIS

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WALLUM LAKE, R. I.

My object in this paper is to place on record a rather unusual case of chronic pulmonary tuberculosis in an adult, with metastatic involvement of most of the ribs, the left clavicle, the frontal bone and the thyroid cartilage. While tuberculous involvement of the bones and joints as a complication of pulmonary tuberculosis is not so uncommon as some writers assert, it is extremely unusual to find such widespread involvement of the bones, especially in an adult. A search of the recent literature available did not disclose any record of a similar case.

Fig. 1.—Appearance of chest with tuberculosis of both upper lobes; the shadows indicated by arrows proved, at necropsy, to be collections of pus in the mediastinum and between the parietal pleura and the chest wall.

REPORT OF CASE

History.—J. H. C., a man, aged 28, a jeweler, admitted to the Rhode Island State Sanatorium, July 28, 1922, complained of slight cough and expectoration, moderate loss of weight and strength, and three painful swellings, one on the forehead, one in the lower part of the right midaxillary region, and one in the left interscapular region.

The patient's family history as well as his previous personal history has no bearing on the case.

His present illness began, about four months prior to his admission to the sanatorium, with general weakness and slight cough. About the same time he developed a small swelling in the lower part of the right chest. The swelling was quite

painful and grew gradually until it reached the size of a hen's egg. A few weeks later, he developed a similar swelling in the left interscapular region, and about the same time another swelling appeared in the upper part of the forehead. The patient never had hemoptysis or pleurisy, but he lost about 10 pounds (4 kg.) and had occasional fever and night sweats for about two months.

Examination.—The patient was ambulant, and appeared poorly nourished and somewhat anemic. A tender, fluctuating swelling about the size of a walnut was noted on the upper part of the forehead. There was another swelling about the size of an orange in the right midaxillary line over the fifth and sixth ribs. The ribs near the swelling were extremely tender. There was a third swelling in the left interscapular line on a level with the sixth and seventh dorsal vertebrae. There was no tenderness over the spines of the vertebrae, and no kyphos or any other evidence of Pott's disease, but there was marked tenderness of the ribs in the neighborhood of the abscess and in the region of the lateral processes of the sixth and seventh vertebrae. Examination of the lungs showed dulness over both apexes and at the right base. There were no definite changes in breathing and no râles at the first examination. Subsequent examinations, several weeks later, showed a moderate number of moist râles over both upper lobes. The heart, abdomen and extremities were negative. The sputum was repeatedly negative for tubercle bacilli. The Wassermann test of the blood was negative.

Course.—Exploratory puncture of the various swellings disclosed pus, proving them to be cold abscesses. A specimen of pus from each abscess was injected into guinea-pigs, and all the animals developed typical tuberculosis. When the abscess over the frontal bone was evacuated, a very tender circular erosion of the bone about 1½ inches in diameter could be palpated. The abscess on the back caused the patient so much pain that it finally had to be incised and drained. The other two abscesses ruptured spontaneously after several aspirations, and discharged a considerable amount of pus and cheesy matter.

August 18, three weeks after his admission to the sanatorium, the patient developed an acute pain in the left chest, high fever, and marked dyspnea. Examination of the chest showed typical signs of pleural effusion at the left base, while at the same time the cold abscess that was previously noticed in the left interscapular region had practically disappeared. It was evident that the abscess must have ruptured into the pleural cavity. Exploratory puncture of the left pleural cavity revealed turbid fluid. A guinea-pig inoculated with this fluid developed tuberculosis. In about a week the abscess reappeared.

During the month of January, 1923, the patient developed a swelling, on the right side of the thyroid, about the size of a walnut. It had the appearance of an enlarged lobe of the thyroid gland, but aspiration revealed pus. On microscopic examination of the pus, tubercle bacilli were found on direct smear. This abscess was also treated by repeated aspirations. About the same time, the patient also developed pain and a cold abscess in the outer part of the left clavicular region. Motion of the left arm was restricted and painful. Aspiration also revealed pus. A guinea-pig inoculated with the pus developed tuberculosis. When the pus was evacuated, crepitus and abnormal mobility could be made out at about the junction of the outer and middle third of the clavicle, indicating a spontaneous fracture, as there was no history of trauma.

The patient had considerable fever during the entire period of his stay, was growing gradually weaker, and had frequent attacks of marked dyspnea and cough. Though he developed no more cold abscesses on the chest, practically all the ribs were gradually growing extremely tender, and he could not rest in any other but the semirecumbent position. He died from asthenia, May 9, 1923.

Roentgenologic Examinations.—Stereoscopic films of the chest taken, Aug. 2, 1922 (Fig. 1) showed mottling in the upper halves of both lungs, the appearance being typical of pulmonary tuberculosis. On a level with the fifth to the seventh ribs in the right midaxillary line there was a well-defined homogeneous shadow about the size of a hen's egg that could be seen in the stereoscope projecting from the inner surface of the chest wall into the thorax. A similar shadow, about the size of a hazelnut, was seen on a level with the first rib, on the right side. The cardiac shadow seemed to be considerably enlarged to the right; but, instead of having the normal convex appearance of the right heart border, this shadow had a lobulated appearance. There was also a homogeneous shadow at the base from the sixth space down, merging with the heart shadow. These peculiar shadows proved afterward to be due to a collection of pus in the mediastinum, and between the parietal pleura and the chest wall. Another film, August 21, showed, in addition to these findings, a dense homogeneous shadow at the left base, reaching to about the fourth interspace, and having the typical appearance of a pleuritic effusion. A roentgenogram of the skull, October 10, (Fig. 2) showed an area of rarefaction about 1½ inches in diameter in the upper part of the frontal bone, indicating bone destruction. November 3, the ribs were roentgenographed with the idea of locating the probable lesions of the rib, but no such lesions could be demonstrated. A roentgenogram of the clavicle (Fig. 3), April 4, 1923, showed

Fig. 2.—Bone destruction in frontal bone.

a fracture at about the junction of the outer and middle thirds of the clavicle, and both fragments were considerably rarefied near the fractured point.

Necropsy Findings.—Removal of the sternum in the usual manner revealed a considerable amount of caseous and purulent matter in the mediastinum along the right heart border, and between the right lower lobe and the anterior part of the diaphragm, compressing the right lower lobe backward and upward. There were marked adhesions at the right base anteriorly and at the mediastinum, and it was therefore impossible to be certain whether these collections of caseous material were encapsulated between the layers of the diaphragmatic and mediastinal pleura, or between the pleura and the chest wall. It seemed probable, however, that the abscess did not break through the parietal pleura. The right lung was adherent at the upper third, but the rest of the pleural cavity was comparatively free, and could be inspected. When the right lung was removed, several swellings could be seen projecting from the interior surface of the chest wall into the thorax. The largest was in the posterior mediastinum, extending from about the first to the sixth rib, and was about 2 inches wide. Several other swellings, ranging from the size

of an orange to the size of a hazelnut, were scattered in the various parts of the chest. Incision of these swellings revealed collections of cheesy matter between the parietal pleura and the chest wall. After evacuation of the abscesses, the ribs could be seen eroded, spongy and brittle. Practically every rib above the eighth rib was involved, most of them near the vertebral articulations, though there were also some that were involved near the costochondral junctions. On the left side, there were marked adhesions from the apex to the base. In an attempt to detach the lung at the base, a considerable amount of sanguineous and purulent fluid was evacuated, but no pleural surfaces could be seen. The parietal pleura at the lower posterior part of the left chest was apparently destroyed, and this collection of fluid was evidently in contact with the internal surface of the chest wall. When the left lung was removed, marked erosion and rarefaction of the fifth to the eighth ribs were seen. The lateral processes of the spines of the corresponding vertebrae were also eroded. Examination of the lungs showed extensive tuberculosis of both upper lobes, with considerable fibrosis. No definite cavities were seen, but both apexes were honeycombed. At the right side of the neck, a collection of pus was found just above the thyroid gland. On evacuation of the pus, the outer surface of the thyroid cartilage was found to be eroded. The head and abdomen were not examined.

Fig. 3.—Fracture of clavicle and rarefaction of bone.

COMMENT

It is evident that in this case the various bone lesions were secondary to the pulmonary disease. The appearance of the lung and the clinical symptoms were those of a chronic tuberculous process of long duration, while some of the lesions in the bones developed right under our own observation.

The extensive involvement of the ribs might suggest the possibility of direct extension of the disease through the lungs and pleura, but careful examination shows that this was not the case. It will be remembered that the right pleural cavity was comparatively free. The parietal pleura, though moderately thickened, did not show any evidence of active tuberculous involvement, while many pus pockets were found between the pleura and the chest wall in connection with diseased ribs. On the left side there was a direct connection between the involved ribs and the pleura and lungs, a considerable part of the parietal pleura being diseased. It will be recalled, however, that when the patient was admitted to the institution, physical and roentgen-ray examinations did not show any pathologic changes in the left pleural cavity. It was only some time later that one of the abscesses evidently ruptured into the pleural cavity. It is obvious, therefore, that the lesions in the ribs, as well as those of the clavicle, thyroid cartilage and skull were of metastatic origin.

It seems rather strange that, in spite of the extensive disease of the ribs, the lesions could not be demonstrated on the roentgenograms, though several films were taken for that purpose. This seems to be due to the fact that the diseased portions of the ribs were uniformly eroded and rarefied; but there was not enough localized bone destruction or new bone formation to change the contours of the ribs to such an extent as to give positive roentgenographic evidence of a lesion.

One of the most unusual features of this case is the spontaneous fracture of the clavicle. Tuberculosis is hardly ever mentioned as a cause of spontaneous fractures. In the majority of tuberculous bone lesions, new bone formation goes hand in hand with bone destruction. Spontaneous fractures are therefore very unlikely to occur. In this case, however, the involved bones were rarefied and brittle without any gross evidence of new bone formation. It is not surprising, therefore, that the weight of the arm and muscular action were sufficient to break the diseased clavicle.

THE STANDARDIZATION OF DIGITALIS BY ITS ACTION ON THE HUMAN HEART*

PRELIMINARY REPORT

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While tests were being made of the absorption of digitalis from the gastro-intestinal tract, it was discovered that effects on the electrocardiogram were sometimes observable as early as two hours after the oral administration of the tincture in a dose of 1 minim per pound of the patient's body weight.[1] This earliest effect was a diminution in the height of the T wave, and this diminution was observed to increase in amount to a maximum at some time between six and ten hours after the dose was given. The maximum change in the T wave was considered to record the maximum effect from this dose. Changes in the heart rate also occurred, beginning at about the same time and reaching a maximum at about the same time.

These effects on the electrocardiogram and the heart rate were considered to indicate the rate of absorption of the drug. It seemed reasonable to assume that when enough of the drug was absorbed to act on the heart, the first change set in, and that the change increased as more and more of the drug entered the circulation. It then occurred to me that the amount of the drug necessary to produce a minimal change might be used as a measure of the potency of a digitalis preparation, a small amount of a potent preparation serving to produce the same result as a larger

* From the second medical division of the New York Hospital and the Cornell University Medical School.
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1. Pardee, H. E. B.: The Rate of Absorption of Digitalis from the Gastro-Intestinal Tract, J. A. M. A. 75: 1258 (Nov. 6) 1920.

amount of a less potent one. This method of testing digitalis takes into account not only the potency of the preparation in question, but also its absorbability, so that it should be a particularly good test for a preparation to be given by mouth, as is usually the case with digitalis.

It was soon found, as was anticipated from previous results with digitalis, that there was considerable variation in the susceptibility of different patients to the same preparation. It seemed to be true that the majority of patients were about equally susceptible, but certain individuals were remarkably resistant, so that they failed to show the typical changes even after a dose equal to 1 minim of the tincture per pound of body weight. It was necessary, therefore, to test a given preparation on several patients before a definite indication of its activity could be obtained, for there would always be a certain number of patients who would not show a digitalis effect from a dose which in another patient would give a plain effect.

We are really testing the patient's susceptibility as well as the strength of the drug, so that our final conclusion will be in regard to the action of the drug on the majority of patients, not on the exceptionally resistant ones.

THE METHOD OF PROCEDURE

1. A control electrocardiogram was taken between 4 and 5 p. m.

2. The test dose was given by mouth in about 2 ounces of water at 7 a. m. of the day following.

3. A record was taken between 4 and 5 p. m. of this day to see whether or not the test dose had produced an effect.

4. A larger dose was given by mouth at 7 a. m. of the next day, of sufficient size to bring the total up to 1 minim per pound of the patient's weight, plus another 20 minims, which was to make up for the twenty-four hours' excretion of the drug.

5. A third record was taken between 4 and 5 p. m. of this day to ascertain whether this large dose had affected the electrocardiogram, for only if it had done so could we feel that the patient was normally susceptible to the drug.

6. Later doses and later records were used to follow the course of digitalization, especially in resistant patients who showed no effect after the large dose. This phase of the subject will be reported on later.

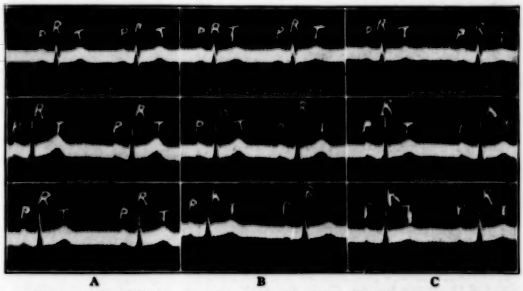
The test dose was varied in size according to the patient's weight, the number of minims being one half, one third, or one quarter of the number of pounds to the patient's weight. The patients chosen were such as were available in the medical wards of the New York Hospital. It was necessary to use patients who had not had digitalis previously, so those with heart disease were only rarely available. Likewise, patients with abnormalities of the ventricular waves other than a simple right or left ventricular prominence were excluded. The diagnoses were, for the most part, such things as chronic gastric ulcer, subacute rheumatic fever, convalescent bronchitis, and pleurisy with effusion; but it appeared to make no difference to the test whether or not the patient had heart disease.

All records were taken with the patient in bed, and having rested for at least twenty or thirty minutes after any physical activity, so as to avoid the possibility of a disturbance of the electrocardiogram from this source. The instrument was carefully standardized before each lead, and all records included a test of the deflection produced by introducing a potential difference of 1 millivolt in the circuit of the patient and the galvanometer. From this deflection could be noted the exactness of the standardization and, even more important, the presence of the overshooting of the deflection which comes from a high resistance of the patient to the passage of an electric current.[2]

Many experiments had to be discarded because of the unexpected finding of overshooting in this test deflection.

The accompanying electrocardiogram gives the records of a typical experiment, *A* being the control, *B* the record after the test dose of 26 minims of the tincture to a patient of 106 pounds (one-fourth the body weight in pounds), and *C* the record after the large dose, in this case 100 minims (106 + 20 — 26).

Table 1 gives the measurements of the height of the T waves in these three records, the measurement for each lead being taken to be the average of several of its T waves. This record shows a positive effect on the T wave from a dose of 26 minims, which was one fourth of the patient's body weight. A negative result would have been recorded if the T waves of Record B had been of the same height as those of the control,



Three records of Patient 16: *A*, control taken before digitalis was given; *B*, taken after 26 minims of the tincture was given by mouth; *C*, taken after 100 minims more had been given on the next day. The waves marked P are the auricular waves; R and T are the ventricular waves. Note the diminished size of the T wave after digitalis, without change in the other waves. The vertical lines represent time, each division being 0.04 second. The horizontal lines represent the strength of the current: each ten divisions represent 1 millivolt.

while those of Record C showed a diminution as a result of the larger dose.

By this method, we have tested four different tinctures of digitalis. One, A, from an American grown leaf; two others, B and C, from a good English leaf;

TABLE 1.—*Average Height of T Waves* *

T Wave	A, Control. Mm.	B, Record after 26 Minims of Tincture B. Mm.	C, Record after 100 Minims of Tincture B. Mm.
Lead 1	1.0	1	0.8
Lead 2	2.5	2	1.8
Lead 3	1.5	1	0.7

* The measurements are of the T waves in the three leads of the records of the accompanying electrocardiogram, and show a slight change in height with the small dose and a greater change with the larger dose.

and one, D, from an unknown source, but put out by a reliable drug house. Tincture A was very active clinically, and produced prompt digitalis effects. Tinctures

2. Pardee, H. E. B.: An Error in the Electrocardiogram Arising in the Application of the Electrodes, Arch. Int. Med. **20**: 161 (Aug.) 1917.

B and C were used in the wards of the New York Hospital at different times, and Tincture B was noted to be an especially potent preparation, while the other was not found so potent, though good enough. Tincture D had been used under my observation at the Lying-In Hospital, and impressed me as being a weak preparation.

RESULTS OF TESTS

The results of the tests are summarized in Table 2, and follow more or less closely the impressions as to their relative potency received by the clinical use of the different tinctures.

TABLE 2.—*Results of Testing Forty-One Patients with Four Different Tinctures of Digitalis* *

	Tincture A				Tincture B				
Patient	Weight, Lbs.	Dose in Minims	Result	Percentage of Dose to Body Weight	Patient	Weight, Lbs.	Dose in Minims	Result	Percentage of Dose to Body Weight
1	107	21	—	20	14	132	25	—	19
2	102	20	—	20	15	123	25	—	20
3	125	25	—	20	16	106	26	+	24
4	150	26	—	20	17	114	28	—	24
5	140	28	+	20	18	96	24	+	25
6	124	25	—	20	19	122	30	+	25
7	108	27	+	25	20†	115	29	?	26
8	130	32	+	25	21	110	28	+	25
9	108	27	+	25	22	120	30	+	25
10†	117	29	?	25	23†	122	40	—	32
11	132	33	+	25	24‡	133	44	?	33
12†	174	58	—	33	25	128	43	+	33
13	110	37	+	33					
	Tincture C				Tincture D				
26	110	15	—	13	36	140	35	—	25
27	120	20	?	15	37	170	45	—	26
28	158	30	—	19	38	130	33	—	25
29	114	25	—	22	39	120	30	—	25
30	170	50	—	30	40	160	30	+	30
31	127	38	+	30	41	120	40	+	33
32†	130	36	—	28					
33	179	63	+	35					
34	123	49	+	40					
35	114	47	+	41					

* The patient's weight in pounds, the size of the test dose in minims and the result, positive (+), negative (—), and doubtful (?) are shown; also the percentage relation of the figure for the dose to the figure for body weight.

† These patients were usually resistant to the action of digitalis, as shown by a failure of the large dose to affect the T wave.

‡ The Q-R-S group of this patient changed after the test dose of digitalis; therefore it was not felt that the T wave change must be ascribed to the drug.

Tincture A (Upsher Smith, October, 1922; cat unit, 0.65 c.c.) was by this test a very potent preparation, giving a positive reaction quite constantly with a dose equal in number of minims to 25 per cent. of the patient's weight in pounds, and in one instance giving a positive reaction to a number of minims 20 per cent. of the patient's weight in pounds. Tincture B (New York Hospital, December, 1921-February, 1922; cat unit, 0.65 c.c.) tested as of good potency, giving a positive reaction in the 25 per cent. dose with but one exception. Tincture C (New York Hospital, November, 1920-February, 1921; cat unit, 0.65 c.c.) did not show nearly as good potency as Tincture B. It is unfortunate that overshooting destroyed the value of all the testings with a 25 per cent. dose, but of the three testings with a 30 per cent. dose, one was on a resistant patient, one was positive and the other was negative. Three tests with still larger doses were positive. Tincture D (Mulford fluidextract of digitalis diluted to form a tincture; cat unit, unknown) was negative to three 25 per cent. doses and one 28 per cent. dose. It was positive to two 30 per cent. doses. This would suggest a potency less than that of Tinctures A and B, which was in agreement with the clinical observations on this tincture.

COMMENT

The theoretical advantages of this method of testing the potency of digitalis preparations by their action on the human heart seem to me to be considerable. In the first place, we are giving the drug to the human animal, the one on which we intend to use it therapeutically. In the second place, since it is given by mouth, the question of absorption of the preparation from the gastro-intestinal tract is also covered by the test. Both of these features of digitalis tests have long been moot points between the pharmacologists and the physicians, the latter often claiming that the results of the laboratory tests on such animals as the frog or cat or dog could not be properly applied to the human patient.

This change in the T wave of the electrocardiogram comes on after small amounts of digitalis have been given by mouth, and increases steadily in degree as more of the drug is given. It certainly represents one of the actions of the drug, and if, as seems the case, this action is coincident with that stimulation of the heart muscle which is our therapeutic aim, then we may use the one as a measure of the other.

It will always remain true that the final test of the value of a drug is its therapeutic effect on the patient, but the therapeutic testing of different preparations of a drug is a difficult and time consuming task. It is, therefore, not a practical method of standardization. The observation of the change in the T wave of the electrocardiogram does afford a practical method. The test gives a measure of the *minimal effective dose* of a given digitalis preparation. This is, in all likelihood, a more or less definite fraction of the therapeutically effective dose, and preliminary observations suggest that it is one sixth or one eighth of the therapeutic dose.

This test for the potency of digitalis preparations must be tried more extensively than I have yet been able to try it, before a final judgment of its value can be obtained. It has, however, such a sound, theoretical basis, and the results with these four tinctures were so well in accord with the observed clinical activity of the different preparations, that I feel the method should be made public so that more extensive trials at the hands of others may prove its true value.

74 West Forty-Eighth Street.

Infant Welfare in Ecuador.—While infant and child mortality in Ecuador is still high, a satisfactory improvement is noticeable of late, according to a recent report by Prof. J. M. Estrada Coello, of the Guayquil Medical School. This progress is more marked in Guayaquil where infant welfare work is better developed. While in 1915, there was an infant death rate (children under 1 year) of 31.4 per 100 births, in 1921 this had decreased to 22.6. A similar decrease was observed in the death rate for children under 12 years and naturally in the general mortality figures. At Quito, the infant death rate per hundred births was 20.4 in 1921 and at Cuenca 26. Dr. Estrada's report, which was submitted to the Child Welfare Congress held at Rio de Janeiro, is profusely illustrated with reproductions of the different institutions (nurseries, hospitals, homes, schools) devoted to child welfare in Ecuador. The first child welfare association was organized in Guayaquil in 1905. Since then, 80,000 children have been treated in its dispensaries. A number of popular pamphlets have also been distributed.

JUVENILE DEFORMING METATARSOPHALANGEAL OSTEOCHONDRITIS

FREIBERG'S INFRACTION OF THE METATARSAL HEAD *

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CHICAGO

A description of juvenile deforming metatarsophalangeal osteochondritis has not yet found its way into even the very latest textbooks. The literature on the subject is not voluminous. It was first described by Freiberg of Cincinnati in 1913, in a paper read before the Southern Surgical and Gynecological Association. He saw his first case in 1903, but his paper [1] reporting six cases did not appear until August, 1914. Since then, he has seen four or five cases. Köhler [2] of Wiesbaden described the condition in 1915, and in 1920 he [3] reported five cases. The number of cases reported to date is sixty-three. The two cases reported here bring the total number to sixty-five.

Cases Reported

Author	Number of Cases
Freiberg	10
Köhler	5
Skillern	1
Painter	3
Campbell	4
Fromme	1
Weil	2
Cryspathes	1
Fischer	9
Unger	1
Liek	1
Alberti	6
Axhausen	2
Panner	13
Hibbs	2
Speed	1
Valenti	1
Lewin	2
Total	65

This condition is erroneously known as Köhler's metatarsophalangeal syndrome. Freiberg called it infraction of the metatarsal head. Skillern [4] prefers the term impacted fracture to that of infraction. He calls it an "egg-shell" fracture. On the assumption that it is analogous to similar conditions in other regions, especially in the hip, I wish to add the term metatarsal epiphysitis, metatarsal "flat-head" or osteochondritis deformans metatarsojuvenilis. A more descriptive term is juvenile deforming metatarsophalangeal osteochondritis.

The etiology of the condition is unknown. It is in the same stage that Legg-Calvé-Perthes disease was in a decade ago. It is my belief that metatarsal osteochondritis has an etiology similar to that of the previously named hip condition, of Osgood-Schlatter's disease, Köhler's disease of the tarsal scaphoid, calcaneal apophysitis and Scheuermann's vertebral epiphysitis. When trauma affects bone and cartilage during a period of unusual growth, the foregoing conditions may result. The important factors are: (1) trauma; (2) circulation, and (3) infection.

Freiberg believes that trauma is the cause, and states the mechanism of the injury as follows: Under normal circumstances, the second metatarsal bone is slightly longer than the first. In the presence of a diminished power of toe flexion and especially of the great toe, it is apparent that forcible impact of the ball of the foot against the ground, not sufficiently guarded by the flexor power of the toes, will cause the distal end of the second metatarsal to bear the brunt of the blow. All of his six reported cases were due to trauma, especially that caused by tennis. Campbell [5] offers the explanation that sudden jumping on the ball of the foot with the toes dorsiflexed throws the heads of the metatarsals downward. He thinks that basketball, tennis and running upstairs are the chief causes. Two of Painter's [6] cases resulted from baseball injuries. Skillern's patient, a woman of 40, merely stubbed her toe.

Fischer [7] believes that a moderate trauma strikes the foot in front, acts on the farthest projecting second toe, and presses the head of the metatarsal backward.

Alberti [8] believes in the traumatic etiology, and offers the following explanation: The second toe is longer than the others, and the head of the second metarsal is the chief support of the foot; therefore it is subject to greater trauma. He is of the opinion that the condition is first an osteochondritis, and then a chronic arthritis.

In 1909, Legg offered the hypothesis of trauma as the primary cause of disturbance in the circulatory relationship between the epiphysis and the neck of the femur, the immediate result being atrophy in the former through a diminished blood supply, and hypertrophy in the latter. He believed that the hypertrophy was related to the hyperemia not only induced temporarily by the traumatic congestion, but also maintained for a considerable length of time by a proportionately increased blood supply where the blocking of the epiphyseal channels distributed a heavier circulation to the diaphyseal vessels. Adding to this disturbance the factors of pressure and growth also through a definite period of time, he concludes, as to the ultimate result, that pressure on the epiphysis, atrophied by diminished blood supply, produced flattening: that growth, as especially stimulated in the hyperemic upper diaphysis, produced thickening in the neck and modification in shape.

Axhausen [9] is opposed to the theory of a traumatic origin, and believes that the lesion is due to an embolic obstruction of the corresponding epiphyseal end-artery by tuberculous fragments or fragments with weakly virulent pyogenic cocci. The distal thickening of the shaft is explained by simultaneous emboli in the metaphyseal arterial branches, as a result of which a serous inflammation of the bone develops. The local process with secondary arthritis deformans is similar to the formation of free osteocartilaginous bodies with secondary arthritis deformans in the other joints in which the traumatic etiology has been established.

* Read before the Chicago Orthopedic Club, April 13, 1923.

1. Freiberg: Infraction of the Metatarsal Head, Surg., Gynec. & Obst., August, 1914, p. 191.
2. Köhler, A.: Grenzen des normalen und Anfange des pathologischen im Röntgenbilde, Ed. 3, Hamburg, Lucas Grafe, 1915.
3. Köhler, A.: Eine typische Erkrankung des 2. Metatarsophalangealgelenkes, München. med. Wchnschr., 1920, No. 45, p. 1289.
4. Skillern: Ann. Surg. **70**: 371, 1915.
5. Campbell, W. C.: Infraction of Metatarsal Bones, Am. J. Orthop. Surg. **18**: 721 (Oct.) 1917.
6. Painter, C. F.: Infraction of the Second Metatarsal Head, Boston M. & S. J. **184**: 533 (May 26) 1921.
7. Fischer: Die von A. Köhler beschriebende Erkrankung des 2. Metatarsuskopfchens: eine traumatische Deformität, Fortschr. a. d. Geb. d. Röntgenstrahlen **28**: 462 (Nov.) 1921.
8. Alberti, O.: La sindrome scafoidea del Köhler, Radiol. Med. **9**, Part 6 (June) 1922.
9. Axhausen, G.: The Etiology of Köhler's Disease of the Heads of the Metatarsal Bones, Beitr. z. klin. Chir. **126**: 451, 1922.

It is a condition occurring especially during adolescence. Union of the metatarsal diaphysis and epiphysis occurs between the eighteenth and twentieth years, and of the phalangeal structures, about the eighteenth year (Gray). Of the thirteen patients in Panner's [10] report, ten were between 10 and 14 years, and three were adults. It is possible that in the adult patients, the condition was present but unrecognized earlier. In Fischer's

Fig. 1 (Case 1).—Appearance of left foot, Dec. 16, 1920: third metatarsal head flattened; neck and head broad; joint space increased, and triangular shaped area of epiphysis suggestive of infection.

nine patients, the ages were 10, 15, 16, 16, 21, 24, 25, 35 and 45. Two of Panner's patients were adults. Four of Freiberg's patients were under 18 years of age, and two were below middle age. Painter's patients were 17, 13 and 60 years of age.

Freiberg's first six patients were females. Eleven of Panner's patients were females; two were males. Two of Painter's patients were boys. Campbell's four patients were girls.

In three of Fischer's patients the left foot was affected; in five, the right. All of Freiberg's cases were unilateral. One of Fischer's cases was bilateral. One of Campbell's cases was bilateral, affecting the third toe of the left, and the second toe of the right foot.

All of Freiberg's six cases were of the second metatarsal. One of Campbell's cases was a third metatarsal affection.

PATHOLOGY, EMBRYOLOGY AND ANATOMY

The metatarsal bones are each ossified from two centers: one for the body and one for the head, of the second, third, fourth and fifth metatarsals. The first metatarsal has one center for the body and one for its base. Ossification begins in the center of the body about the ninth week, and extends toward each extremity. The center for the base of the first metatarsal appears about the third year; the centers for the heads of the other bones between the fifth and eighth years. They join the bodies between the eighteenth and twentieth years. The phalanges are each ossified from two centers; one for the body and one for the base. The center for the body appears about the tenth week; that for the base between the fourth and tenth years. It joins the body about the eighteenth year (Gray).

The circulation of the metatarsophalangeal region is supplied by the dorsal and plantar metatarsal arteries.

The gross pathologic changes consist of flattening of the metatarsal head, with broadening of the neck and distal portion of the shaft and irregularity of the epiphyseal line. Widening of the metatarsophalangeal joint space and diminished cupping of the articular surface of the proximal phalanx, with occasionally loose bodies or a line of incomplete fracture without displacement, constitute the known gross pathologic changes. In three of Freiberg's six cases there were loose bodies.

In view of the fact that no operation was performed in either of the cases comprising this report, the microscopic pathologic observations are quoted from other papers. Axhausen found, on histologic study of two resected specimens, an epiphyseal wedge-shaped necrosis with corresponding reparative processes. Under local anesthesia, Unger [11] resected the metatarsal head in one case. He found the head split, the joint capsule dense, the epiphysis soft and the marrow reddish gray. Valentin's [12] case showed microscopically that the cartilage and, in some places, the perichondrium were rich in cells. There were no marked signs of inflammation. In the metatarsal head that Campbell resected, no degenerative changes were found.

SYMPTOMS AND ROENTGEN-RAY FINDINGS

The symptomatology is very brief. There is a uniform complaint of pain referred to the region of the affected metatarsal head. Swelling is usually present. It is due to exudate. No marked increase of joint tension is demonstrable. There is very marked, sharply circumscribed sensitiveness to pressure over the metatarsal head and the metatarsophalangeal joint. Abnormal local temperature is unusual. Definite limitation of

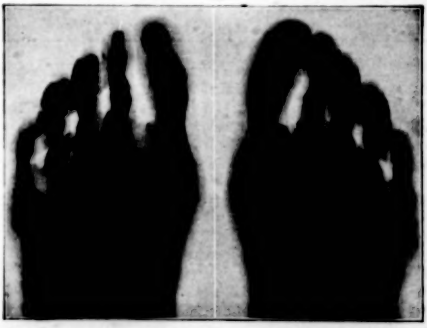

Fig. 2 (Case 1).—Appearance, April 23, 1921: third metatarsal head flattened; neck and head broad; epiphysis irregular; joint space increased, and cupping of articular surface of proximal phalanx diminished.

10. Panner: A Peculiar Characteristic Metatarsal Disease, Acta radiol. 1, No. 3, 1922.

11. Unger: Typical Pathologic Condition of the Second Metatarsophalangeal Joint, München. med. Wchnschr. 68: 614 (May 20) 1921.

12. Valentin: Beitrag zur Köhlerschen Erkrankung des II Metatarsophalangealgelenkes, Fortschr. a. d. Geb. d. Roentgenstrahlen 29: 173 (April 22) 1922.

motion with muscle spasm is present. Abscess formation has not occurred in the cases reported.

To the roentgen ray must go the credit of recognition of this condition. It is here that a most interesting chapter is found. The findings are characteristic. They are: (1) flattening of the metatarsal head; (2) broadening of the neck and distal portion of the shaft; (3) irregularity of the epiphyseal line; (4) widening of the

Fig. 3 (Case 1).—Appearance, March 16, 1923: all epiphyses prematurely united; patient is 16 years old.

metatarsophalangeal joint space; (5) diminished cupping of articular surface of proximal phalanx, and (6) occasional line of incomplete fracture without displacement. Valentin, Axhausen and Liek [13] found areas of sequestration similar to those observed in both cases of this report.

In view of the fact that metatarsalgia is relatively uncommon in childhood, it is advisable to have roentgenograms made of both feet of every child who has a persistent metatarsalgia. It is possible that the first film will be negative and that the examination should be repeated. Occasional roentgenograms should be made of proved cases in order to check up on the progress of the condition.

DIAGNOSIS AND COURSE

The direct diagnosis is made on the history, local examination and roentgenograms. The differential diagnosis rests between Morton's metatarsalgia, Deutschlander's metatarsal periostitis, fracture, dislocation, syphilis and arthritis of childhood, viz., Poncet's or Still's disease. In the condition described by Deutschlander, there is local tenderness at the junction of the middle and distal thirds of the metatarsal shaft, and roentgen-ray examination reveals evidence of periostitis. It is a subacute inflammatory periostitis.

If recognized early, and if proper treatment as outlined below is instituted, the prognosis is excellent.

The course is short, lasting a few weeks. Abscesses have not been reported. Recurrences have occurred after nonoperative treatment, and all the cases in which operation has been performed are reported as cured.

TREATMENT

The treatment consists of absolute relief of the affected foot from weight-bearing by means of crutches and a block under the heel and sole of the shoe of the opposite foot. The foot should be immobilized in a plaster cast with a small, beveled felt pad applied just back of the metatarsal heads. As the cast sets, pressure is applied laterally and upward to build up the metatarsal arch. Phosphorized cod liver oil internally is of value. Fresh air, good hygiene and food hasten recovery.

When all symptoms have disappeared, a proper shoe is prescribed. This should be a straight last, round toe, medium shank shoe into which is inserted a felt pad for the transverse arch. This may be applied by means of a resinous glue and tacks directly into the shoe, or sewed to the bottom of a leather insole. A metatarsal bar or anterior heel may be used, and the entire leather heel should be removed and a low rubber heel applied. A duralumin, or other metal plate made over a corrected plaster cast may be used temporarily. Physiotherapy, heliotherapy, hyperemia and hydrotherapy are indicated after the cast is removed. Baking, gentle massage and passive and active movements with contrast baths hasten recovery. Special exercises for the metatarsal arch are performed over a round door stop screwed to a board. The patient sits, and with the door stop exerting pressure back of the metatarsal heads, the toes are forcibly flexed and extended. Picking up various sized marbles from a rug, using the bare toes, and pulling objects on the floor with the toes are auxiliary exercises. Freiberg recommended a felt pad to support the metatarsal head, and the insertion in the sole of the shoe of a steel plate to prevent motion at

Fig. 4 (Case 2).—Appearance, May 8, 1922. Patient of Dr. R. P. Potter of Marshfield, Wis.

the metatarsophalangeal joints. In cases in which the roentgenogram shows loose bodies, "corpora libera," he advises arthrotomy.

REPORT OF CASES

CASE 1.—*History.*—I. C., a white girl, aged 14 years, a private patient of Dr. John L. Porter, referred by Dr. A. K. Sutch, first seen Jan. 10, 1921, complained of pain in the left

13. Liek, E.: Pathologic Conditions in Metatarsophalangeal Joints, Deutsch. Ztschr. f. Chir. 166:126 (Sept.) 1921.

foot in the region of the third metatarsophalangeal joint. There was no swelling. The duration of the pain was six months, with no evidence of injury or other cause. The patient spoke of a tired feeling in the afternoon. One afternoon her temperature was 100. Her general health had been below par lately. Tuberculosis of the third metatarsal bone had been diagnosed. Operation was advised, but her mother refused.

Examination.—The examination revealed no visible abnormalities. There were no palpable abnormalities except marked sensitiveness, definitely localized over the head of the third metatarsal bone and the adjacent joint of the left foot. A roentgenogram, made Dec. 16, 1920, showed the characteristic findings enumerated above (Fig. 1). The corresponding region of the right foot was normal. The treatment instituted was immobilization by means of a metal splint for the third toe, crutches, and a block under the right shoe. At the end of five weeks, all symptoms had ceased. The patient has since had a simple metatarsalgia of the great toe of the same foot, which was easily controlled by a felt pad support.

She was seen, March 24, 1923, and no further symptoms were noticed. The head of the third metatarsal felt thick. The height of the patient was 5 feet 8 inches (173 cm.), and her weight, 120 pounds (54.5 kg.).

Case 2.—*History.*—J. B., a white girl, aged 12, a private patient of Drs. E. W. Ryerson, Hollis E. Potter and R. P. Potter, complained of pain and tenderness in the ball of the right foot. In May, 1922, she consulted her family physician, complaining of pain in the right foot which had been noticed for about two weeks. On examination, there was tenderness on pressure over the distal head of the second metatarsal. Roentgen-ray examination at this time revealed what appeared to be an extensive bone lesion of the epiphysis of the second metatarsal. The urine was found negative. The blood examination showed: red blood cells, 5,000,000; white blood corpuscles, 10,900, and hemoglobin, 95. The differential count showed: neutrophils, 52; small mononuclears, 26, and large mononuclears, 20.

Treatment.—The patient was allowed to be up and about as usual, but cautioned to avoid injuring the foot. Under R. P. Potter's direction a series of twenty-one treatments was given, using a deep therapy lamp and Alpine light. The foot and leg were given exposures of fifteen to twenty minutes' duration with a deep therapy lamp followed by

Fig. 5 (Case 2).—Appearance, July 8, 1922.

alpine light to both dorsal and plantar surfaces of the foot, beginning with three minutes and increasing up to thirty minutes each. The treatments extended from May 16 to July 19, 1922. The pain and tenderness in the foot had disappeared before treatment was discontinued. Roentgen examinations, made June 6 and July 8, showed very little change in the lesion. A roentgenogram, made April 3, 1923, showed the lesion entirely healed.

SUMMARY AND CONCLUSIONS

We have here a condition occurring more commonly in growing girls. The complaint is metatarsalgia, and the roentgenogram reveals deformity of the metatarsophalangeal joint and its component bones. The cause is bound up with three factors: trauma, circulation and infection. It is my belief that the etiology is trauma affecting the bone and cartilage during a period of unusual growth. The condition is analogous to Legg-Calvé-Perthes disease, Osgood-Schlatter's disease, Köhler's tarsal epiphysitis, calcaneal apophysitis and Scheuermann's vertebral epiphysitis. The prognosis is very good, and the treatment consists of relief from weight-bearing.

Fig. 6 (Case 2).—Appearance, April 3, 1923.

7 West Madison Street.

Juxta-Articular Nodes.—Since 1916 when this condition was first reported in Brazil, there have been eighteen cases reported in that country, says Dr. F. I. da Silva in his recent illustrated monograph, which adds six to the twelve cases previously reported. A Brazilian scientist, Dr. A. Lutz, first reported this form of tumor from Honolulu in 1891. The second group of cases was that reported by Jeanselme in 1904 from Indo-China. The nodes appear subcutaneously about some joint, most frequently the elbow, are rounded, either monolobular or polilobular, fibroid, painless, mobile, and usually symmetrical. The size varies from a grain of corn to a lemon. They have been described under different names from several tropical countries. Brazil apparently is the only American country affected by the disease. No race is immune. Both sexes are attacked, although preferably the male sex. The growths generally appear in middle age. There is no contagiousness. While their causation is unknown, syphilis has been blamed as the underlying factor, their ready subsidence to antisyphilitic remedies being advanced in support of this view. Prognosis is favorable. The medical treatment may prove successful with arsenicals, iodids or mercurials. When the nodes reach a certain size, it may be necessary to resort to surgery. Dr. da Silva believes that a case reported by Dr. Howard Fox of New York in a negress as fibroid syphiloma of elbows and knees belongs to this type of tumors.

A STUDY OF THIRTY-FOUR CASES OF ABSCESS OF THE LUNG*

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The recent literature on lung abscess reveals two very important facts: (1) the increasing recognition of the importance of tonsillectomy as a causative factor in the production of lung abscess, and (2) the apparently marked increase in the general incidence of the condition. The operation of tonsillectomy seems to be most likely to be followed by lung abscess when it is performed under general anesthesia. Lockwood,[1] for example, in a recent study of fifty-four cases of abscess of the lung seen at the Mayo Clinic, considered that sixteen were due to tonsillectomy, in all but one of which operation had been performed under general anesthesia. Pottenger[2] reports having seen twenty cases following tonsillectomy within a year and a half. Whittemore[3] states that in 1921 he saw thirty-two cases of lung abscess, of which seventeen followed tonsillectomy. Other literature on this subject is quoted by Lockwood. Pritchard[4] reports thirty-two cases of lung abscesses; ten out of the thirty-two followed tonsillectomy.

The apparently marked increase in the general incidence of the condition cannot be explained entirely by the relationship to the operation of tonsillectomy. It is probably also due in part to the fact that many more cases are recognized now than formerly. The roentgen ray is largely responsible for this increased recognition. There are still, however, far too many cases, particularly of chronic lung abscess, which are confused with tuberculosis. It has been a common experience to find patients with chronic lung abscesses and bronchiectasis who have been treated for tuberculosis for months, and even for years, with no definite evidence of having tuberculosis. A chronic productive cough with occasionally recurring pulmonary hemorrhages is too often considered to be tuberculosis, when often it is merely an expression of a chronic suppurative process of the lung.

In this paper, a study is made of thirty-four cases of lung abscess seen in the Barnes Hospital and elsewhere. The various tables present the chief points of interest. It is worthy of special comment, however, that in our series, eight cases, or 24 per cent., followed tonsillectomy. None of these tonsillectomies had been performed in the Barnes Hospital, and all of them had been done under ether anesthesia. Dr. Sluder states that after more than 20,000 operations for tonsillectomy performed by himself and his staff with nitrous oxid analgesia, there have been no cases of lung abscess. Lockwood states that in 100,000 tonsillectomies at the Mayo Clinic, there have been no cases of lung abscess.

It is probable that the operation of tonsillectomy is responsible for this high percentage of cases. Whether the abscess occurs as a result of aspiration of infected material or embolism is not discussed.

Abscesses may be found in any part of the lung, more frequently in the lower part than in the upper part, and usually close to the pleura. But when there are multiple abscesses throughout the lung, there are only a few that are situated near the pleura.

Abscesses of the lung offer a great variety of symptoms, and no definite characteristic signs. But certain symptoms are very common. In most cases, there is a septic temperature and night sweats. The sputum in the beginning is very scant, and the cough very severe. The sputum is mucopurulent, and then becomes purulent. Chills are very common, and there is a considerable loss of weight and strength, and a decided anemia. Occasionally, a large amount of sputum is brought up at one time and may relieve the patient. Severe hemorrhages occur occasionally, similar to tuberculous hemorrhages. Pulmonary abscess, when ruptured in the pleura, will produce empyema. It is not uncommon for the abscesses to rupture into a bronchus, but the opening is not large enough, and there will be recurrent attacks of paroxysm at cough, with the expectoration of a large amount of pus. The odor of the sputum is usually very foul, and elastic tissue is frequently seen. It has been noticed that the sputum is nearly always negative for tubercle bacilli. Clubbing of the fingers is frequently noticed. Rarely, however, does one get the typical cough that one hears in tuberculosis.

Physical signs depend on the location and the size of the abscess. There are patches of consolidation with bronchial breathing, râles and increased whisper, such as are present in tuberculosis.

Roentgen-ray findings are usually typical, provided the abscess is large. Dense (homogeneous) shadows are seen with fairly good lung tissue around the lesion. The borders are not so sharply demarcated as in tumor of the lung. The costophrenic angles are usually clear, unless there is an associated pleural effusion. The apexes are also usually clear. In the fluoroscopic examination, one can usually see a dense shadow around the hilum toward the periphery. If the patient is examined tangentially, the lung abscess shows a more definite shadow. Plates of the patient should be taken serially. Occasionally, a fluid level is seen in the shadow. This is a pathognomonic sign of cavity, when found.

The treatments used are medical postural drainage, bronchoscopy, pneumothorax, thoracotomy and lobectomy.

It has become our custom not to puncture the lung for diagnostic purposes until it has been definitely determined that there are adhesions around the site of the abscess by doing a diagnostic pneumothorax. The method of procedure is to cocainize the skin around the site 3 or 4 inches away from the suspected abscess, and introduce a small amount of air into the pleural cavity at the first operation. After forty-eight hours, a little more air is injected, and the nonadherent lung is compressed; this shows definitely whether adhesions are present. At the site of adhesions of the lung, an exploratory thoracotomy is done. A portion of the rib directly above the site of the greatest dulness and densest shadow seen in the roentgenogram is removed; aspiration is then done in various sites of the lung until the abscess is found. If the adhesions are not very dense, and if, inadvertently, the pleura is opened, the lung and pleura are sewed to the thoracotomy wound, which is then packed with iodoform

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1. Lockwood, A. L.: Abscess of the Lung, Surg. Gynec. & Obst. 35: 461 (Oct.) 1922.
2. Pottenger, quoted by Lockwood (Footnote 1).
3. Whittemore, W.: Lung Abscess, S. Clin. N. Am. 1:765 (June) 1921.
4. Pritchard, J. S.: Value of Rest in Empyema and Lung Abscess, J. A. M. A. 79:2208 (Dec. 30) 1922.

gauze, and the skin is closed tightly. In several days an aspiration needle is introduced. With the needle in place, the abscess is opened either with the cautery or by blunt dissection, and a large, soft rubber tube is introduced for drainage.

It has been the custom to give the patients the benefit of bronchoscopy, postural drainage and pneumothorax before any operative procedure is done. The medical treatment is, of course, tried first. Some men, skilled in the use of bronchoscopy, are able to aspirate the contents of the abscess with good results. Unfortunately, there are not many places in which this method can be used favorably. A large number of patients do not present themselves for examination until a year or so after the beginning of symptoms; thus, multilocular abscesses are formed, and the drainage of one abscess helps very little.

The table shows definitely that a large percentage of abscesses of the lung follow tonsillectomy. It is sometimes impossible to recognize the cause of abscess, but with a more careful analysis, it is probable that the cause will be found. In two cases of carcinoma of the lung, the abscess followed massive roentgen-ray treatment; it is not known whether this was coincidental.

It is very evident, that the large number of abscesses are in the right lung, especially in the lower lobe. This may be due to the more direct connection between the outside world by virtue of the relative vertical path that the right bronchus takes.

The upper lobe abscesses are not as frequent as the lower.

The single abscess is much more frequent than the multiple. It must be noted that most of the single abscesses are usually of a longer duration. Cases 12 and 14 are both recent cases.

Pneumothorax is done mostly for diagnostic purposes, but in two cases recovery followed. Many authors, such as Rich,[5] Goldberg and Biesenthal,[6] and Forlanini,[7] report that many cases have been treated by pneumothorax successfully. It will be noted in the text that pneumothorax was performed in order to determine the presence of adhesions rather than to collapse the lung.

Of the thirteen patients submitting to operation, six died, a mortality of 46 per cent. This mortality seems very high, and actually it is higher than the usual reported mortality. For example, Lockwood states in his article that in reports of 1,117 cases of lung abscess in the medical literature, the average mortality with surgical treatment was 34.6 per cent. In Lockwood's own series, however, in fifty-four cases, there was surgical mortality of 41 per cent. In a series of nine cases in which operation was performed by Dr. Evarts Graham at the Barnes Hospital, there were two surgical deaths, a mortality of 22 per cent., but both showed multiple abscesses at the necropsy, and were therefore, cases in which death could hardly be ascribed to the operation.[8]

A third patient operated on by one of us (E. A. G.) died several months later with extensive carcinomatous metastases. A patient, with a similar condition, operated on by Dr. Max Meyer, died several months later, and at necropsy an extensive carcinoma of the lung was found at the site of the abscess. Dr. Major Seelig operated on one patient who died later, also of symptoms of general carcinomatosis.

CONCLUSIONS

Abscess of the lungs is being recognized more today than heretofore. The large number of tonsillectomies done is one factor which is responsible for what is apparently a greater number of abscesses than formerly. Early recognition and operation before the abscess has become chronic frequently prevents the failure of treatment, although many patients will recover with nonsurgical treatment. Careful history taking, physical signs, use of the roentgen ray and diagnostic pneumothorax make early recognition possible. Patients who do not recover in two or three months need surgical treatment.

Results of Observations

ETIOLOGIC FACTORS

	Number	Per Cent.
Causes unknown	3	9
Tonsillectomy	8	24
Other operations	3	9
Gallstones	1	
Leg amputation	1	
Hernia	1	
Pneumonia	3	9
Influenza	2	6
Bronchiectasis	2	6
Various other causes	13	37
Carcinomas	2	
Tooth extractions	2	
Staphylococcus septicemia	2	
Esophagus fistulas	2	
Metastatic lat. sinus abscess	1	
Respiratory infections	2	
Infarction	1	
Diabetes mellitus	1	
Total number of operations	11	32
Abscesses following ether anesthetic	11	100

LOCATION

	Number	Per Cent.
Right lung	29	85
Upper lobe	9	
Lower lobe	14	
Mid lobe	2	
Multiple	4	
Left lung	5	15
Lower lobe	1	
Upper lobe	2	
Multiple	2	

INCIDENCE OF LOCATION

	Number	Per Cent.
Upper lobes, right and left	11	32
Lower lobes, right and left	15	44.5
Mid lobes, right	2	6
Multiple, right and left	6	17.5

KINDS

	Number	Per Cent.
Single abscesses	28	82.5
Multiple abscesses	6	17.5

RESULT OF TREATMENT WITH PNEUMOTHORAX

	Number	Per Cent.
Pneumothorax	9	26
Successful	2	22
Unsuccessful	7	78

OPERATIONS

	Number	Per Cent.
Operations	13	36
Improved	6	46
Unimproved	1	8
Deaths	6	46

CASES IN WHICH OPERATION WAS NOT PERFORMED

	Number	Per Cent.
Nonoperative	21	62
Improved	4	19
Unimproved	8	38
Uncertain	1	5
Deaths	8	38

SEX INCIDENCE

	Number	Per Cent.
Males	23	67.5
Females	11	32.5

5. Rich: Am. J. M. Sc. **32**: 510-516, 1922.
6. Goldberg, B., and Biesenthal, M.: The Treatment of Acute Lung Abscess by Artificial Pneumothorax, Am. Rev. Tuberc. **3**: 169 (May) 1919.
7. Forlanini: München. med. Wchnschr. **57**: 124, 1910.
8. Many writers consider that patients with multiple abscesses should not be subjected to operation. We are inclined to support this view. In the cases mentioned above, however, there was no possible way of recognizing by clinical means the fact that the abscesses were multiple. Since the preparation of this article, one of us (E. A. G.) has devised and carried out successfully on two patients a method which may bring some cases of multiple lung abscess within the scope of justifiable and relatively safe surgical treatment.

LOBAR PNEUMONIA COMPLICATING INDUCED PNEUMOTHORAX

CLOUGH TURRILL BURNETT, M.D.
DENVER

In spite of the comparatively large number of patients who have undergone therapeutic pneumothorax, a lobar pneumonia occurring in the course of this treatment is a rarity. Such an experience in my practice recently led me to make some inquiries from colleagues who have had an experience in this field over a much greater number of years. Dr. Walter G. Holden states that in his twenty years' experience at the Agnes Memorial Sanatorium he has never seen a patient with this dual condition. None of the other medical men to whom inquiry was directed reported having seen or having known of this complication. This led to a search of the literature.

Weiss,[1] in 1912, described a case that was fatal. The patient had carried a left-sided artificial pneumothorax for eight months. A specific right-sided pneumonia began in the middle lobe, extending to the upper and lower lobes.

Gray[2] reports a fatal case of bronchopneumonia of the sound lung in a case of artificial pneumothorax of four years' standing.

Peters[3] describes a right pneumothorax case in which influenza was contracted, and in which there was a typical bronchopneumonia in the left base.

Mayer[4] reports four pneumothorax cases in which pneumonia followed influenza ("grippe pneumonie"), the involvement in each case being on the sound side. Only one of these, however, was of the lobar type. This author states that "aside from the grippe, pneumonia upon the sound side in pneumothorax cases seems to appear seldom," and that he was unable to find a case in the literature.

A personal search of the literature since 1909 has so far furnished only two cases of lobar pneumonia involving the uncollapsed lung in the course of a therapeutic pneumothorax, and only five cases of bronchopneumonia.

REPORT OF CASE

History.—J. S., a man, aged 31, an American, a civil engineer, seen, March 12, 1921, complained of a severe hacking cough and a large amount of foul sputum, though with a very little impairment of health. The family history was unimportant. When he was 11 years old he had had pneumonia. He was ill for three weeks, but made a good recovery. From 1910 to 1915 the patient had frequent colds and considerable bronchial trouble. In 1913, large amounts of sputum were raised throughout the day. In 1915 a medical consultant reported the heart dilated somewhat to the left, the pulse 108, with soft blowing murmur at the apex. The patient at this time showed slight enlargement of the heart to the left, increased density of the hila and both descending bronchi, somewhat more marked on the right.

Examination.—The patient was fairly well developed and fairly well nourished. The fingers were clubbed, and the breath was very foul. The nose and throat were normal. Breath sounds were diminished at the bases on both sides. Fine, dry bronchial râles were heard all over the chest and back, but disappeared when the patient coughed. There was diminished resonance above the second rib on the right, with hyperresonance elsewhere. Examination of the heart revealed: left border and apex beat, 9.5 cm. from the midsternal line; there were no murmurs.

Roentgenograms had been taken by Dr. W. W. Wasson in January, 1920. These were repeated, March 14, 1921. A comparison of these showed a marked peribronchial thickening scattered throughout both lungs, which was more marked on the right. There was increased density in the right apex. Old pulmonary tuberculosis was now quiescent, with evidence of a mixed infection along the right lower main bronchus. This was definitely dilated.

The diagnosis was emphysema and bronchiectasis. Postural and hygienic treatment, with brief attempts at autogenous vaccine therapy, was of practically no avail. Physical findings remained about the same. Roentgen-ray examination, June 8, 1922, showed the left basal bronchi remaining practically uninvolved in the dilatation process.

Treatment and Course.—It is well known that pneumothorax does not offer great advantages in the treatment of bronchiectasis. Rist[5] has reported one case cured by artificial pneumothorax. After a year of attempts at postural and other methods of treatment, the patient remained unimproved. The odor of the breath was so foul that he felt that he would prefer to take some chances in order to overcome this condition. Because the process seemed to be entirely, or at least mainly, unilateral, a pneumothorax was determined on with the idea that if successful the patient might at a later time undergo thoracoplastic surgery.

The first pneumothorax was done, June 10, and by June 28 the right lung was collapsed so that it occupied about one fifth of the right thorax, with breath sounds entirely absent and no râles heard at any time; the sputum and breath were odorless, with a marked reduction in the amount of sputum. This treatment was continued at intervals of from two to three weeks. A point of interest in this connection is that at no time was it necessary to employ a high positive pressure to keep the dilated bronchi collapsed.

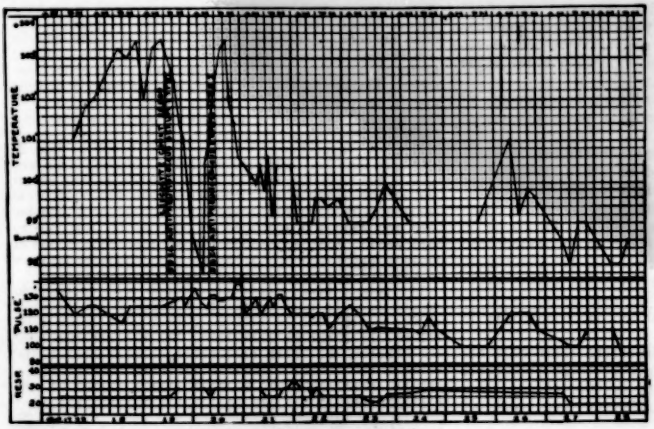
The patient made steady improvement with increase in weight until the intercurrent illness which forms the basis of this report. Oct. 15, 1922, the patient had a severe chill, followed by a rise in temperature. He was not seen until the following day, when examination failed to disclose the cause of this sudden temperature elevation. October 17, he entered Mercy Hospital, at which time a change in the hyperresonance, which had existed over the left lung since the institution of the pneumothorax, was noted over the left lower lobe, and over the upper portion posteriorly of this lobe there was a marked increase in vocal reasonance and fine inspiratory râles. The temperature now ranged between 101 and 102. The respiration was 28, and the pulse ranged from 120 to 140. October 18, the local signs were more definite, and established the diagnosis of lobar pneumonia. On this day, the patient raised some rusty sputum, which was injected into a mouse for typing purposes, and, October 19, this test showed a Type I pneumococcus infection. The temperature, October 19, at 11 a. m. was 103.4; the pulse was 130, and respiration, 30. The leukocyte count was 28,000. At 4:30 p. m., the patient received intravenously 50 c.c. of Type I antipneumococcus serum. This was followed by a steady drop in temperature, which reached 97.8 at 7 a. m. the following morning. The subsequent temperature, pulse and respiration observations are shown in the accompanying chart. A second dose of 50 c.c. of antipneumococcus serum, administered nineteen hours after the inital dose, was followed by a brief elevation in temperature. Two days later, the temperature reached 99. From this point, the recovery was uneventful, with the exception of a typical anaphylactic serum disease, which occurred on the tenth day after the first serum injection. For one day only the temperature rose to 101, the pulse to 120, and respiration to 24, accompanied by a widespread urticaria, all of which entirely disappeared in twenty-four hours.

1. Weiss, August: Ueber Komplikationen bei Behandlung mit künstlichen Pneumothorax, Beitr. z. Klin. d. Tuberk. **24**: 333, 1912.
2. Gray, E. A.: Case of Artificial Pneumothorax of Four Years' Standing, Broncho-Pneumonia, Autopsy, Illinois M. J. **38**: 188 (April) 1919.
3. Peters, LeR. S.: Odds and Ends in Artificial Pneumothorax, Tr. Nat. Tuberc. A. **15**: 132, 1919.
4. Mayer, A. E.: Grippe Pneumonie bei Ausschaltung der andern Lunge, Schweiz. med. Wchnschr. **50**: 1042 (Nov. 11) 1920.
5. Rist, Emil: Un cas de bronchiectasie guérie par le pneumothorax artificiel, Bull. et mém. Soc. méd. d. hôp. de Paris **43**: 652 (July 4) 1919.

Fluoroscopic examination, November 16, which was three weeks after the last temperature elevation, excepting that due to the serum reaction, showed the right lung about two-thirds collapsed, and in the left lung, between the seventh and eighth ribs posteriorly, a few fine râles were heard after cough. Subsequently, complete resolution took place.

This case is reported because the handling of lobar pneumonia in the presence of artificial collapse on the other side always offers some difficulty and is attended with very great danger.

In Peters'[3] case of bronchopneumonia, aspiration was not performed, and the patient recovered. In Weiss'[1] case of lobar pneumonia, aspiration was performed twice because of severe dyspnea, one time with apparent improvement, the second time with collapse and death. In two of Mayer's[4] cases, aspiration was performed on the eighth day, because of air hunger and failing pulse, with almost immediate results. It remains a question, however, whether a normal crisis happened at this time. The withdrawal of the air from the collapsed side during the course of the pneumonia is not without danger, for the sudden withdrawal of such a large



Temperature, pulse and respiration.

amount favors mediastinal displacement and attendant cardiac strain. This is especially objectionable in pneumonia. Fortunately, in this case the infection was a pneumococcus Type I, and an antiserum was available.

A further point of interest is the effect of this intercurrent infection on the bronchiectasis. Prior to the pneumonia, the patient was free from foul sputum as long as the lung was maintained in complete collapse; but if it was allowed to reexpand even slightly, the odor was again apparent. This disappeared again with complete collapse. While the treatment was of necessity discontinued for a time, the long interval being forty-seven days during the pneumonia as compared to an average of two weeks before, we found that, following the pneumonia, while sputum appeared in increasing amounts immediately following the pneumothorax operations, the foul odor has at no time been noted. The patient has entirely recovered from the recent infection, and is continuing the pneumothorax in the hope of obtaining at least a partial relief from the bronchiectasis.

517 Imperial Building.

A Pioneer.—The pioneer of experimental physiology in France was François Magendie (1783-1855), who employed both physical and chemical procedure in his investigations, and was the modern founder of experimental pharmacology. —Garrison's History of Medicine.

THE PATIENT'S MIND

SHALL IT BE CONSIDERED IN TREATING HIM ?*

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Probably every physician thinks he is treating or at least considering his patient's mind. But, as a matter of fact, a vast majority receive no attention, a considerable minority receive some attention, and a very limited minority receive attention to the mind commensurate with its importance in influencing, for better or worse, the physical ailment for which the physician is consulted. If all patients had their minds ministered to, it is practically certain that spiritualists, both the domestic and the foreign brands, would find it difficult to fill even small halls for their lectures, whereas now they fill vast auditoriums with the curious and with those who are ill at ease in mind and seek relief from mental travail. Organized groups that use the name of Christ to designate their philosophy at the same time that they make Him second in importance to a self-created and self-apotheosized leader would be unable by an adroit combination of a pseudoreligion with an even more pseudoscience to fill great churches and, through them, commercially operated consulting rooms all over the land. More orthodox religious bodies would refuse to place the stamp of approval on paranoidal inviduals who, by the aid of incantations and the laying on of hands, claim to be able to place the sick on the high road to health. Well meaning foreigners would fail to set a large part of the nation to dancing a kind of mental syncopation in trying to delude itself either that it is not sick and cannot be sick, or, if sick, that it can readily be restored to health by iteration and reiteration of a Mother Goose rhyme. If there were no need for mental ministrations, it is probable that a majority of the cults—mechanistic, religious, psychologic, and, one might add, with certain reservations, psychanalytic—would never have emerged from the innocuous desuetude to which Grover Cleveland consigned those who were obnoxious to him, and which may serve as a realm from which evil forces may be invoked. If the mind did not play an important part in disease, it is improbable that great masses of the public would be seeking relief from entirely illusory vertebral displacements and other nonexistent malformations from which, either directly or reflexly, physical disorders, utterly remote from the alleged lesions, are supposed to have sprung. To bring the matter up to date, medical mountebanks would find it impossible to

* Read before the Southern Oregon Medical Society at Ashland, Ore., May 8, 1923.

delude the sick, and oftentimes the dying, into the belief that, by the use of a mechanical vibratory apparatus and a few drops of the patient's blood, all diseases can be correctly diagnosed, and many of those regarded by scientists as incurable completely cured.

The mind is a tremendously important factor in the production of symptoms. Excluding the psychoses, consideration of which is not to be undertaken in these remarks, it enters little into the production of organic disease, but it causes symptoms, or the simulation of symptoms, which are often indistinguishable from those resulting from organic disease processes. The mind as an etiologic factor is more of an aggravating than a producing force, and it is from this point of view that it will be discussed at this time.

FEAR

There are two phases of activity that stand out in the minds of patients. The first is *fear* and the second is *desire for attention* of a tangible and understandable nature. Fear dominates the minds of a majority of sick persons—fear of the unknown; of the consequences of the disease; that the physician has not made a correct diagnosis or does not understand the trouble for which he is giving treatment; that the medicine will not act as it should act; that it will not successfully combat the developing disorder; of untoward results, of chronicity, of disabling effects, and that death is impending.

Those who depend for their results on religious and psychologic services do all that they can to eliminate fear. They deny the existence of disease or they keep ever present before the patient's eyes the "starry banner of hope," or both. Promises of a glowingly optimistic nature are made, regardless of the truth. The main stock and reliance of mental healers is the promise of recovery, and such explanations as are made of the nature and character of disease, if disease be admitted at all, invariably discount pathologic activities and tend to continuous reassurances of restoration to perfect health.

DESIRE FOR ATTENTION

The desire of the patient for tangible attention is probably the largest factor in the success of the mechanotherapeutists, whatever the name under which they disguise their treatments. Many patients are not satisfied with the customary oldtime medical examination, especially examination that consists principally of inquiries into the nature of symptoms, past or present. It is not infrequent for a patient to complain that he was never examined, notwithstanding the records may show that a prolonged and painstaking history—the most important part of the examination in a vast majority of cases—was taken. This rarely satisfies him. What he wants is a "thorough examination," to use a phrase that is quoted again and again in the consulting room. By "thorough," he means a physical examination. He means tests such as percussion and auscultation, counting his pulse rate, inspection of his tongue, and the use of the blood pressure apparatus, of the ophthalmoscope, and of the multitudinous other diagnostic agencies. He likes to have his heart charted on his chest wall, the outlines of his liver marked with blue or red crayon, his spleen located by the same means and, indeed, all of his viscera mapped out.

To such examinations, though they may be unnecessary, he attaches vast importance. If they are supplemented by roentgenograms, blood tests, repeated urinalyses and examinations of the stomach contents and feces, if he is examined in such a way that naught is left to his imagination, he feels that he is receiving service. Here and there a patient is found who considers such tests as buncombe; but the vast majority like to have them made. A patient may rebel when he is charged for the time spent and the skill used in performing these tests; but when they are made with sufficient detail and at sufficient length, he is convinced that he has had a complete examination, and he tells his friends about it and sends them to the physician who has done this work for him.

Again, he likes the kind of medical visitor who examines him at each visit. He is not satisfied with the physician who looks in hastily, glances over his chart, gives a few orders and departs. He is sick. He is important to himself if to no one else. His mind is beset with doubt and fear and anxiety. He wants to be fussed over, and he welcomes the kind of attention of which this is considered a necessary part. The physician who reexamines him at every visit, who personally counts his pulse instead of determining what it is from the nurses' chart, who daily looks at his tongue, listens to his heart, and percusses his abdomen, is the one who pleases him. Now, every physician realizes that such services are many times worthless. Often he is enabled to determine the patient's condition at a glance, especially if that glance is supplemented by another at the chart; and there is at all times a tendency to perform services in this way.

Contrast the average medical visit with a visit to the mechanotherapeutist, who, each time, strips his patient, pinches him, hammers him, twists his neck, punches his spine, manipulates him, all with a vigor that creates an impression that he is getting service. If the manipulations are sufficiently vigorous, he is not only convinced that something is being done, but he is delighted when the treatment is over. Five or ten minutes of vigorous manipulation will seem as if he has received a half hour or an hour's attention. The latest fad requires that the patient shall be connected with an electrical device, that his body shall be painted with colored substances, and that he shall remain in a certain position, receiving the inflow of healing currents for anywhere from half an hour to three or four hours; and the waiting rooms of those who use it are crowded.

One may see the good effect of personal attention in the offices of nose and throat specialists in which patients receive legitimate and well directed treatments of half a dozen kinds, beginning with an application of an analgesic, and followed by washing out of the nasal cavities with antiseptic solutions, and an application of stimulants and finally of soothing oily substances. Those who receive such treatments, however ill they may be on entering the office, leave it feeling that a definite procedure has been completed from which it is logical to expect a definite result. To carry the argument further, patients rarely complain very much of surgical operations through which they have passed. A patient may dread an operation in anticipation, but after it is over he is usually proud of the ordeal through which he has passed. He likes to tell of the pain he endured in the operation or the dressings, and in many instances he is most pleased who has had the most dressings. The wound which, having been made with perfect skill, heals rapidly and without complication, often does not begin to give the satisfaction of the wound that does rather badly; and, to a certain extent, a poor surgical result is compensated for by

the pleasurable sensation of martyrdom or heroism which a bad result often entails.

Every irregular practitioner knows the value of attention and, wittingly or otherwise, takes advantage of it in his ministrations. He makes constant appeals to the mind of his patient by performing services that are tangible and satisfying. Thus he creates a market for his own errors.

In part based on registration,[1] it is estimated that there are in the United States about 5,030 osteopaths, 7,000 chiropractors, 500 naturopaths, 8,000 Christian science practitioners and more than 7,274 unclassified healers, a total of 27,804 cultists as compared with 145,354 registered doctors of medicine. If to these cultists is added 2,000 physicians who have engaged in quackery, it will be seen that there are approximately one fifth as many irregular healers as there are qualified physicians. The number of irregular healers is relatively greater than their importance, yet they would not exist if they did not fill a kind of need.

WHY CULTISTS SEEM TO SUCCEED

Every one having practical experience in medicine must admit that irregular healers *seem* to cure many patients with whom physicians have failed. The probable reasons are three in number: Either the diseases with which they succeed are imaginary, or self limited, or they do not actually cure patients, but make them believe themselves cured. All three reasons are found among those whom they have treated. Probably the first is the commonest. It is notable that few persons who are acutely ill call irregular healers, and that such healers are not anxious to treat patients who are in dangerous condition, the principal exceptions occurring among the religious healers. It is also true that few surgical patients who are acutely ill seek the ministrations of cultists, though many with chronic or incurable disorders, such as cancer, are to be found among their followers. A small number of surgically sick persons, through fear of "the knife," seek other healing measures, usually from some renegade physician.

The patient who is acutely ill remains under medical care in part because he receives continuous ministrations. He is confined to his bed, his temperature is frequently taken, nurses, professional or amateur, dance attendance on him, his diet is regulated, medicine is given him, and he receives many forms of service, all of which keep his mind occupied and, of equal importance, keep occupied the minds of his relatives and friends. Let the attending physician become inactive and resort to a policy of watchful waiting, and dissatisfaction develops. As convalescence begins and activities lessen about the sick bed, the battle is on. Especially if the case is prolonged, the relatives are besieged by those who can either themselves restore the patient to health or know of some one else who possesses magic by which this desirable result can be accomplished. Many convalescent patients desert those who have cared for them during the acute and dangerous stages of illness, and new thought, Christian science, prayers, and cultism receive the credit for having performed the cure.

The purpose of these remarks is not to tell how to build or maintain a practice. Their intent is to treat the subject as a scientific and not a commercial problem, and this leads to the second inquiry.

1. These figures were furnished, on request, by the Secretary of the Council on Medical Education and Hospitals of the American Medical Association. He explains carefully that they are estimates only, as exact figures are unobtainable. I believe that they approximate closely the real numbers of healers.

SCIENTIFIC PSYCHOTHERAPY

How may the physician meet the situation here presented and fill the apparent need for something that seems to have been missing from his work? He cannot be expected to resort to subterfuge or evasion. He cannot be expected to lie in the interests either of science or of success. He has a reputation to sustain, and, whereas the cultists come and go, here one day and there another, willing to prostitute truth and science for temporary gain, the physician has but one standard and cannot violate it. That standard is the truth; but it is difficult always to apply truth, naked and unashamed, and the attempt to do so often results in his patients seeking other means of restoration to health.

The first consideration should be adequate examination by every known means to determine beyond cavil the nature of the illness, and this examination should include the ordinary good history plus necessary inquiries as to the patient's state of mind. There is no need, except perhaps in the rarest of cases, to secure this information by psychanalysis or any other form of mental legerdemain. An inquiry that does not hesitate to include every phase of the patient's life will fulfil all needs. After the history has been taken and a diagnosis made, every therapeutic agent of value should be used. It is exceptional to find a complaint that too much is being done. When all this has been attended to, the patient's state of mind should be considered. Patients often need, not a physician, but a divorce, a bank account, a steady and lucrative position, relief from harassing home or business environment, a vacation, or the turning of the mind into new paths. Explanation as to the nature and character of the illness is of prime importance. He who is not convinced that his physician knows what is wrong is never a satisfactory patient. If he has not faith, it is better that he shall be allowed to go elsewhere. On the other hand, the patient who is convinced that the physician knows what is wrong and what should be done is a satisfied and satisfactory patient. Physicians frequently err in discussing before a patient doubts as to diagnosis. Contrariwise, honesty may require that a physician shall tell his patient plainly that he is in doubt, that only time, patience and a certain amount of research will permit of accurate diagnosis. One of the commonest inquiries that patients make is concerning the cause of a given disorder or why a given disorder has appeared. Patients are unable to understand why certain diseases develop in a family which has heretofore been free from them, and the idea of heredity is so firmly fixed in the minds of many laymen as to convince them that such diseases are impossible in their families because they have never been there before.

Among faulty practices is the discussion in the sickroom of the patient's condition either with consultants, nurses or members of the family, and this is particularly true with patients who are supposedly unconscious or semiconscious. No little harm has resulted from this practice, and one is occasionally astounded to hear from a convalescent patient that a remark made weeks before, when he was presumably unconscious, was heard and produced serious mental perturbation and otherwise disturbing results.

A large factor in disease is the misinterpretation the patient places on his own symptoms. Palpitation of the heart mistaken for incurable disease is as serious as would be myocarditis or endocarditis. Unfortunately, the physician also frequently misinterprets the significance of functional disorders, and tells the patient

that he has an organic disease. Nowhere else can be found disastrous effects excelling those resulting from erroneous diagnosis in connection with the heart. The spine shares with it a place in the limelight. The patient with a functional spinal disorder incorrectly diagnosed, let us say, as tuberculosis, an error that was not uncommon in war injury cases, will become anxious, sleepless and worried and will suffer from loss of weight, tremors and physical changes difficult to differentiate from the effects of organic disease. Symptoms soon lessen after he has been examined and convinced of the unreality of the alleged organic changes. Part of the stock in trade of mechanotherapeutists is the diagnosis of an organic change, usually a displacement which they remove. Doubtless here the good results come from the assurance of the operator that he has found a displacement and removed it. Occasionally, the opposite result follows; for if symptoms persist after alleged reduction, the patient has added a new terror in the presence of an incurable disorder. This terror can many times be made to disappear by sympathetic explanation of the impossibility of such a lesion.

There can be no doubt that the benefits of the recent pandemic of tooth extractions were in large part due to the appealing novelty of the proposition. The newness of the thought, the dogmatic assurance of the diagnosticians, the more or less dramatic operation, contributed greatly to the result, and it is not surprising that patients with cancer, syphilis, tuberculosis and epilepsy were relieved by exodontia, and for a time convinced that their ills were the results of infection. They were temporarily relieved of worry, their pains disappeared and their bodies gained in weight from the removal, as if by magic, of the supposed cause, theretofore unknown, of their disorders. One need not discount the real and by no means infrequent benefits to recognize the absurdity of some of the seemingly good results that temporarily follow extraction, just as such good results follow visits to the quack or, indeed, any other purveyor of optimism which takes no account of pathology and of truth.

One of the greatest aids in curing sick persons is to relieve their minds of anxiety, particularly that which is misdirected. If a patient has an incurable disease, it is usually advisable so to inform his relatives; but as long as he can be relieved by medical aid, he is entitled to that aid.

It must never be forgotten that, though the machinery for physical activities is organic, and though the physical part of the body is made up of many marvelous structures, they will not function unless correlated. The great force for correlation is the mind. Life might be defined as the manifestations of the coordination and interrelation of body and mind. Just as the test tube and the laboratory are not the only agents of value in diagnosis, so those things that are strictly scientific are not necessarily most valuable in therapy. Whoever neglects the often intangible but ever present influence of the mind loses one of the greatest of therapeutic opportunities.

CONCLUSIONS

The sick body is always accompanied by a sick mind.

Many sick persons have no organic disorder, but suffer from the effects of suggestion either from within or from without. If suggestion produces disease, it can also cure disease.

Recovery of both mind and body is retarded by fear, worry and misinterpretation of symptoms, and is hastened by their removal.

Much of the success of the cultists is due to their ability to inspire hope. All that they do can be better done by trained physicians.

There is nothing mysterious in scientific psychotherapy. Every physician consciously or unconsciously uses it in his practice. It consists in finding out what is going on in the patient's mind and relieving it by rational explanation and encouragement based on accurate diagnosis.

Psychotherapy should supplement and not displace other recognized forms of treatment. Scientific minds will respond to scientific methods, but child minds can be reached only by methods suited to their limitations.

Selling Building.

A NEW AND SIMPLE METHOD OF DETECTING FEIGNED UNILATERAL DEAFNESS

WALTER A. WELLS, M.D.
WASHINGTON, D. C.

Simulation of deafness is one of the commonest forms of malingering encountered in civil as well as in military life, and this, no doubt, for the reason that it is generally regarded as a form of disability very easy to assume and very difficult to detect.

The difficulty lies in the circumstance that deafness is a purely subjective phenomenon, which, though associated in a certain large class of cases (those of sound conducting apparatus) with demonstrable structural alterations, in another class (those of sound perceiving apparatus), in which we may have deafness of the gravest type, it is impossible by any method of examination at our command to discover objective changes to account for it.

In the latter circumstance, recourse must be had to the so-called functional tests, and since information derived therefrom depends on the good faith of the subject examined, we must, when this is under suspicion, employ artifice to discover the deception.

Evidence of the fraud is obtained, for the most part, by the demonstration of discrepancies or inconsistencies in the responses of the subject, and the real success of simulation tests depends on the ability of the examiner to keep the subject ignorant of the procedure, or, still better, to mislead him into believing that he is being tested in a particular different from what is actually the case (confusion test).

The fatal weakness of most, if not all, of the various tests of simulation lies in the fact that a previous knowledge of them enables a clever individual to anticipate one's design and to avoid the pitfall which has been prepared for him.

The auditory malingerer may affect: (1) complete deafness in both ears; (2) complete deafness in one ear with partial deafness in the other; (3) complete deafness in one ear with normal hearing in the other; (4) partial deafness in one ear with the other normal, or (5) partial deafness in both ears—and the word partial may apply to deafness of different degree, which, to be more exact, we might designate as slight, considerable or severe.

Of all the types, the one most frequently assumed is the pretense of absolute deafness in one ear, the other being normal. This assumption entails the least inconvenience and is least difficult to maintain. It is perfectly consistent with the subject's apparent good hearing for

all ordinary purposes. Furthermore, as it happens, it is quite consistent with the conditions of actual practice, for a complete labyrinthine deafness of one side from an explosion or other cause is not infrequently found, with the ear of the other side unaffected.

For the unmasking of simulated unilateral deafness, a number of tests have been devised, but they are for the most part too tedious and too complicated for practical use. We find generally described in the text-books and relied on for those engaged in this kind of work only the stethoscope test, Chimani test, Ehrhardt test, and voice-raising test. Each has a certain value, especially when it turns out positively; but in case of negative results, we are left in doubt. There is not one of them that can be relied on if it happens that the subject has previously informed himself of the principles on which it rests.

I think, therefore, that there attaches to the test which I shall describe a peculiar value in that it is not invalidated by a previous knowledge, no matter how accurate, of its manner of working. It is based on a well established acoustic principle, viz., that when the two ears are simultaneously exposed to sounds of identical pitch and quality, but of different intensity, the sound is invariably referred to the side of greater intensity.

The paraphernalia used for the test is very simple: a piece of rubber tubing of one-fourth inch caliber, from 20 to 30 inches in length, and of a firmness to insure good conduction of sound. In one end of the tube is an ear-piece that fits well into the auditory meatus, while in the other end we insert the stem of a long sounding fork of low pitch (about 126 vibrations a second) and of good amplitude. When the apparatus is used on a person with normal hearing, should one end of the tube be placed, for example, in the right ear, and then the fork caused to vibrate within the usual hearing distance of the left ear, there will be no conscious perception of sound in the latter situation. In accordance with the acoustic principle enunciated above, it is all referred to the right side because of the greater intensity due to direct conduction of the sound waves through the tube to the meatus.

One may easily verify these facts by making alternate compression and relaxation of the tube. If the sound to the right ear is shut off, one will hear the fork perfectly on the left side; on releasing the compression, one will instantly find that the whole sound is referred again to the right.

Applied to the case of the malingerer, the value of the test lies in the fact that with the intensified sound in the alleged deaf ear one is deprived of the power of recognizing the weaker sound in the good ear, which is not true in the case of real deafness, and is therefore a proof of simulation.

The best way to proceed in suspected simulation is to begin by holding the vibrating fork alternately before each ear; in the alleged deaf ear no hearing will be admitted; on the other side, one has only to note the greatest distance the fork is distinctly heard. One then tests the sound of the fork as heard through the tube, with the ear-piece applied first to one ear and then to the other. The subject will probably conclude that a sort of trumpet is being used to magnify the sound, and the malingerer, consistent with his determination to maintain deafness, will answer that he hears nothing in the alleged deaf ear.

He is now blindfolded, and the procedures are repeated while the person who is making the tests stands behind him. Then while the ear-piece is in the supposed deaf ear, the vibrating fork is conducted stealthily to the meatus of the opposite ear, not too near, but to a point at which it has been previously ascertained that he could distinctly hear it. The really deaf person will now, of course, hear the fork the instant it comes within the range of hearing of his good ear. The malingerer, unconscious of any hearing in his good ear because of the lateralization of the sound to the alleged deaf ear, the side of greater intensity, continues to report no hearing, and thus gives incontestable proof of wilful simulation.

The reason that a preknowledge of this test does not nullify its usefulness is that even though the malingerer understands its principles and may realize that one is about to test the good ear, while pretending to test the alleged deaf one, it is impossible for him to know precisely at what stage this is being done. If he guesses too soon, one convicts him of hearing in his alleged deaf ear; if not soon enough, of failing to hear in his admitted good ear.

The only weakness in the test may be that in case of considerable real deafness in the alleged deaf ear, it is difficult to assure the necessary preponderance of sound intensity to get lateralization. In moderate deafness, this is easily overcome by a strongly vibrating fork, a good conducting tube, and care not to place the vibrating fork too near the good ear. In case, however, of only slightly impaired or practically normal hearing, it will give an unerring verdict, which can in no way be evaded.

The Rochambeau.

THE OPERATION OF A BREAST MILK DAIRY*

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In spite of all advances in the preparation of substitute feeding, the tendency in recent years has been to stress the great desirability of utilizing the breast. It has been estimated that about 80 per cent. of babies dying before the completion of the first year are bottle fed. Hence the most feasible and practical way of reducing infant mortality during the first year will lie in encouraging maternal feeding.

The possibilities of the human breast under proper control have been emphasized by the work of the lamented Sedgwick and his colleagues. With suitable care and manipulation, results can often be obtained that are little short of marvelous.

One of the most remarkable anomalies in vital statistics consists in the fact that in New York City the infant death rate is lowest in some of the poorest and most densely populated districts. Thus, in the twenty-sixth district, with a density of 650 persons to the acre, the infant death rate in 1921 was only 45 per thousand. This district is on the lower East Side, with great poverty, ignorance and unhygienic surroundings, as well as overcrowding; but the mothers—Austrian, Hungarian, and Russian Jews—invariably nurse their babies.

In comparison, there is a large area on the upper West Side adjoining Central Park. Here seven districts have only 204 to the acre, the population consist-

* Read before the American Pediatric Society, French Lick Springs, Ind., May 3, 1923.

ing principally of well-to-do people, largely native white with a small proportion of foreign white. As is well known, maternal nursing is comparatively rare among this class. In spite of very favorable hygienic surroundings, the infant mortality for 1921 was 66.9 per thousand. These comparisons, which could be reduplicated several times, would seem to indicate that maternal nursing is the great outstanding factor in the reduction of infant mortality. If only the breast can be conserved, many otherwise unfavorable hygienic conditions may exist and be tolerated as far as the infant is concerned.

Heretofore the only practical way of furnishing breast milk for a baby needing and deprived of it has been to procure a wetnurse. As is too well known, the difficulty of this problem is manifold. It is hard to get the nursing woman, hard to manage her when she has been secured, and often hard to settle the problem of her own baby.

In recent years, and with increased knowledge of how best to manage the human breast, the plan of removing the milk and furnishing it apart from the mother has offered a promising solution of this question. It has likewise been found that in many cases a little breast milk, in addition to the bottle, will have a most favorable effect. Human milk, or a combination of this milk and cow's milk, will prove especially beneficial in premature babies, in those born at term, during the first few weeks of life, and in cases of marasmus. When we consider that the heaviest infant mortality occurs during the first month, and that heretofore all efforts to reduce this mortality have materially failed, although fairly successful after the first month, the great importance of breast milk during the early weeks becomes apparent.

In 1910, Dr. Talbot started an experiment in collecting and supplying breast milk in Boston. Ten years ago, Dr. Hoobler, acting on this idea, began furnishing breast milk with the cooperation of the social service department of Bellevue Hospital.[1] He there demonstrated that mothers can be found perfectly willing to sell their milk; that certain mothers can spare a portion of their milk without detriment to their own babies; that human milk can be thus furnished at a reasonable price, and that the collection can be made by existing agencies.

The best method of handling this work is to have it linked up with a maternity hospital. In Detroit, the Woman's Hospital and Infant's Home, under Dr. Hoobler's direction, has successfully accomplished this endeavor. In the absence of such an undertaking in New York, the directors of the Children's Welfare Federation started an experiment in 1921 aiming to procure and distribute a certain amount of breast milk to aid critical cases.

The health stations of the department of health are utilized in procuring the milk. It is here attempted to secure, for a nominal price from a given number of mothers, a quantity of breast milk that may be employed in supplying hospitals and private homes caring for premature or weak babies. A matron is employed by the federation to work in close touch with physician and nurse in the health station. At first each mother was visited daily and the milk taken in her own home. It was found that there was a tendency among the mothers to have the milk ready when the matron arrived, giving one excuse or another, and finally one mother was found to be watering her milk. This mother had been expressing her milk prior to the arrival of the collector, the reason given being that it was difficult for the nurse to reach the household just at the time the mother was ready to express her milk. It became more and more difficult to insist on our regulations that only milk expressed in the presence of our worker could be used. Each time our collector visited a home and found it necessary to refuse the milk because the regulations were not observed, another visit was necessary to secure the normal supply on which the hospitals and individuals were relying.

It was therefore decided to change our method of collection by insisting that each mother willing to sell her milk should come into the health station, only a few blocks from her home, where our matron was installed. The time is left optional with the mother. No milk is now taken unless it is expressed in the station. This at first cut down the supply, but one mother who at first utterly refused to come to the station is now regularly making two visits a day, and in time we shall be able to reach twice as many mothers by this method. Our matron is at the station from early morning until all the mothers have come and the orders have been filled. She is busy instructing and supervising the mothers, sterilizing the bottles, keeping records, and filling the orders. In the later afternoon she goes out to visit new mothers in order to work up her clientele. As it did not seem possible to secure a sufficient number of mothers from any one health station, arrangements were made to secure the cooperation of nurses in neighboring stations.

Only mothers who have more milk than needed by their own babies are used. The baby has to be under the care of a physician and a nurse in the health station and the case recommended by them. A mother may come in once or twice a day and if she lives at a distance carfare is paid if she can give 10 or more ounces (300 c.c.). A record book is kept and each mother sees an entry made recording the amount of milk she has given. The mother uses a small measuring glass when expressing her milk. Finally, all the milk is pooled and put in large bottles on ice.

The supply is fluctuating, as it is affected by many different factors, such as sickness of the mother or her baby, company at home, bad weather, and visits to relatives. We have had as many as ten mothers at a time, but the average has been only five or six a day. During the last year, thirty-two mothers have sold their milk to us. One mother gave as much as 40 ounces (1,183 c.c.) a day and supplied us with milk for eleven months. It has been found that lactation may be prolonged for fifteen or eighteen months and that the composition of the milk between the ninth and eighteenth month varies very little from that produced between the sixth and the ninth month.[2]

Every one buying maternal milk of the Children's Welfare Federation is required to pasteurize the milk before use, as no Wassermann test has been made on the mothers. Dr. Parks, director of the laboratory of the department of health, rendered the decision that any possible danger would be eliminated if this precaution was taken.

Assays of the pooled milk have been made at intervals of a few months at the Babies' Hospital. The specific gravity of four different mixed specimens was: 1.029, 1.030, 1.038 and 1.024. As to fat, five examinations

1. Hoobler: Arch. Pediat. **31**: 171 (March) 1914.

2. Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: A Chemical Study of Woman's Milk, Especially Its Inorganic Constituents, Am. J. Dis. Child. **10**: 229 (Oct.) 1915.

gave percentages of 4.25, 3.4, 3.9, 3.8 and 4. For protein, four examinations gave 1, 1.2, 1.49 and 1.48 per cent. In three examinations, the probable sugar reached 5.7, 7.09 and 6.7 per cent.

From 3:30 to 5:00 p. m., the hospitals and private purchasers send to the station for their orders. As arrangements have already been made through the central office of the federation and telephoned to the nurse, the milk is bottled and tagged. The hospitals and others are required to return the bottles each day, but there is a sufficient supply on hand to have all the sterilizing done early in the morning before the day's orders are filled.

From October, 1921, to April 1, 1923, a period of eighteen months, we have collected and sold at cost 36,266 ounces. In the Detroit experiment, 80,975 ounces of mother's milk was distributed during 1921 [3] and 55,849 ounces in 1922.[4]

The milk costs us 13 cents an ounce, 10 cents being paid to the mother and overhead charges being 3 cents. It is sold for from 15 to 20 cents an ounce, according to the financial status of the purchaser in private cases, and to hospitals for 10 cents an ounce. It will be possible to collect twice the amount of milk at the same expense when the work is better known and more mothers are secured. We have sold the milk to thirteen institutions and forty-three private persons referred to us by hospitals and physicians. The service can be improved and developed as soon as we are able to give the experiment more publicity and to secure the cooperation of maternity hospitals and district nurses, who often come in contact with mothers having an oversupply of breast milk.

The mothers are paid by check each week and the extra money thus secured has been used for rent and other essentials. One healthy young Italian mother earned $987.98 during 1922 and $73 early in 1923. When we began to take her milk her own baby was not thriving, from being overfed. It at once improved after the mother was relieved of some of her surplus milk. It is hard to find mothers who have an extra supply of milk and often hard to persuade them that their own baby will be protected. The husband's disapproval is sometimes another obstacle, as well as the time taken from home duties.

It is difficult to estimate the number of babies who have been benefited, as the hospitals receiving from 30 to 50 ounces a day have used the milk for a number of different cases. Taking the average amount used in private cases as a basis, I can fairly say that the milk has been given to at least a hundred babies during twelve consecutive months on an investment of $10 for each baby to save its life. Our supply has been so limited that I can safely say it has been used only in emergency cases. Typical cases in which the milk was used were a 2-pound (946 gm.) baby, twins weighing less than 3 pounds each (1,419 gm.), and a 2-year-old baby weighing 12 pounds (5.4 kg.).

Every locality having a maternity hospital or a community health center should inaugurate a similar undertaking. It has been found that human milk, if procurable, can be as advantageously fed from a bottle as directly from the breast, and that any period of lactation can usually fit a baby at any age. It is especially during the first month or two that infant mortality may be materially reduced by this kind of effort.

51 West Fifty-First Street.

3. Annual Report, Woman's Hospital and Infant's Home, 1922.
4. Personal communication to the author.

RESUSCITATION BY INTRACARDIAC INJECTION OF EPINEPHRIN CHLORID

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Intracardiac injection of heart stimulants in acute cardiac failure had been tried many times without promising results until Dennis Crile [1] of Chicago reported the use of massive doses of epinephrin chlorid. He introduced this both by direct puncture into the ventricle and by the intravenous route, showing beneficial results in all five cases reported, with recovery in two of them. Bodon [2] has since reported ninety cases from the literature with permanent results in twenty-four, including one case of his own. In this series, a variety of stimulants were used, with no special emphasis on any single one. In Bodon's case, a patient with syphilitic coronary arteritis with acute cardiac failure, he used 1 c.c. of a 1:1,000 epinephrin chlorid solution as a last resort after cessation of heart and respiration. A few seconds after this had been given by direct puncture into the ventricle, the heart began to beat and the patient soon began to breathe. The patient made a full recovery, and under antisyphilitic treatment had no recurrence.

REPORT OF CASE

A man, aged 69, entered St. John's Hospital in the service of Dr. Bransford Lewis, complaining of urinary retention. Examination revealed hypertrophy of the prostate gland. After suitable preoperative treatment, a first stage suprapubic prostatectomy was performed under local anesthesia. At this time the patient received one-sixth grain (11 mg.) of morphin sulphate with three doses of one-one hundred and thirtieth grain (0.5 mg.) of scopolamin, hydrobromid, thirty minutes apart, with a local anesthesia of 0.5 per cent. procain. The patient withstood the operation well, returning to bed in good condition. His general condition improved after suprapubic drainage, and on the fourteenth day after operation, the second stage was attempted with a caudal anesthesia of 0.5 per cent. procain. The patient received a preoperative narcotic of one-sixth grain (11 mg.) of morphin sulphate and one-one hundred and thirtieth grain (0.5 mg.) of scopolamin, hydrobromid thirty minutes before operation. After conclusion of the caudal injection, the patient was placed in a suitable position for operation, but it was noticed that he had stopped breathing and was very pallid. An unsuccessful attempt was made at resuscitation with artificial respiration, oxygen, camphorated oil and atropin sulphate. The radial pulse was imperceptible, and no cardiac sounds could be elicited over the precordium. The patient's arms were slightly spastic and the pupils were contracted. A long spinal puncture needle with a 10 c.c. syringe was procured, and an injection of 10 c.c. of a 1:1,000 epinephrin chlorid solution was given directly into the left ventricle of the heart through a puncture about 5 cm. to the left of the sternal margin in the fifth intercostal space. This was done about five minutes after the patient had collapsed. The result was almost instantaneous. The heart began beating so vigorously that the pulsation of the abdominal aorta was seen through the abdominal wall within thirty seconds following the injection. Examination revealed a strong, rapid radial pulse with feeble respiration at first, later becoming full and strong. The blood pressure taken about five minutes after injection, was 200 systolic and 110 diastolic, the same as on entrance to the hospital, but the systolic pressure was 40 mm. higher than it was just preceding the operation. The patient had returned to conscious-

1. Crile, Dennis: Resuscitation with Intracardiac Injections, Surg., Gynec. & Obst. 35:772 (Dec.) 1922.
2. Bodon, Carl: Intracardiac Injection of Adrenalin, Lancet 1:586 (March 24) 1923.

ness at this time, and his face was slightly flushed. Operation was postponed and he was returned to bed. About thirty minutes later, the pulse became slightly intermittent but soon returned to normal. The patient showed no ill effects of the procedure, except for a single instantaneous sharp shooting pain over the precordium late the following day. The operation was completed about one week later, under caudal anesthesia, with a preoperative narcotic of one-eighth grain (8 mg.) of morphin and one-one hundred and thirtieth grain (0.5 mg.) of scopolamin hydrobromid. The patient withstood the operation well and returned to bed in good condition. On physical examination, the prostate was found to have a malignant growth, which on roentgen-ray examination, showed metastasis to the lungs. The patient was discharged twenty-five days after the second stage operation, with symptoms of lung metastasis, but able to be up and around.

Bodon believed it dangerous to give more than 1 c.c. of a 1 : 1,000 solution of epinephrin, but as Dennis Crile used as high as 20 c.c. in one case with 10 c.c. in the other four, and I used 10 c.c. in the foregoing case without harmful results, I believe that this type of patient can stand far more epinephrin than the normal individual.

G. W. Crile of Cleveland in his work on anemia and resuscitation in dogs has shown that resuscitation is impossible in dogs when the cerebral centers are anemic for more than ten minutes. I believe that this is true also in human beings, considering the temporary results obtained in three of the cases reported by Dennis Crile. In these instances, the epinephrin was given from fifteen to twenty-five minutes after cardiac failure. The heart started to beat again in all cases, with feeble spontaneous respiratory movements, but the patient did not return to consciousness and soon died. This shows that the time limit in human beings for the use of this method is from ten to fifteen minutes after cardiac failure. Thus, to use this method to the best advantage, it must be done as quickly after failure as possible. We now hold in readiness in the operating room the proper equipment for the use of this method, so that we shall be prepared for any emergency, should it arise.

The limitations of this method have not as yet been determined, but we feel that it is a procedure with which all should become familiar, so that it can be given a thorough trial in the future.

Water Glass as a Mounting Medium.—The use of the common water glass or egg preserver as a mounting medium for microscopic objects has not been reported to my knowledge. Very recently I have had occasion to use it with such apparently successful results that I am forwarding this note in the hope that others who possibly have tried it successfully or otherwise will give us the benefit of their experiences. It is used in the same manner as one would employ Canada balsam, but has the added advantage that dehydration is not necessary. The medium at the periphery of the cover glass quickly hardens to the consistency of glass itself, thus sealing in the liquid center in which the specimen is held. The liquid condition of the medium surrounding the specimen, while viscous enough to prevent movement, allows hairs, scales and bristles to maintain a natural position. It is not satisfactory for mounting alcoholic specimens, but those previously cleared in KOH may be mounted with the same ease that is experienced with fresh or water preparations. It also makes a very satisfactory substitute for shellac in mounting insects on points, as it is colorless, unaffected by heat and holds the insect securely in many cases where the shellac mounted insect is apt to snap off.—Dean T. Burk, University of California, *Science*, July 6, 1923.

THE PRECIPITATION TEST FOR SYPHILIS OF CONCENTRATED ARACHNOID FLUID AND SERUM *

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I have already described the application of a ring or contact method of precipitation test for syphilis.[1] Moody [2] has confirmed the results and, in a series of 1,500 tests, he obtained a close similarity in the results with the Wassermann and the precipitation tests.

Briefly, the ring method requires the clear, activated or inactivated serum and the 0.4 per cent. cholesterolized antigen first described by Neymann and Gager,[3] and later applied in a flocculation test by Kahn.[4] The antigen is an alcoholic extract of pig or beef heart that has been freed of ether extractives; cholesterol is then added to make a 0.4 per cent. solution. The antigen is diluted rapidly to 1 : 10 with physiologic sodium chlorid solution and placed, by means of a small capillary pipet, into small precipitin tubes approximately 5 mm. in diameter. The serum is placed at the bottom of the tube with a small pipet, thus securing perfect contact with the antigen. If the tip of the pipet containing the serum has a protruding drop, it should be wiped off before passing it through the antigen; the capillary end of the pipet should be small enough so that the serum runs out slowly. A clear serum is desirable, and can usually be obtained by bleeding the patient three or four hours after meals, as is generally advised for the Wassermann test. If blood is taken with this precaution, and the tube slanted and left one hour at room temperature before being placed in the icebox, turbid serums are rarely obtained. They ought to occur, as a rule, much less frequently than 14 per cent., as found by Moon [5] in his series. The false clouding with turbid serums, as emphasized by Moon, can usually be interpreted with the aid of physiologic sodium chlorid solution controls. The tube with serum and salt solution gives a similar reaction to that of serum and antigen in negative turbid serums, while positive turbid serums give a heavier and more definite ring with the antigen than with the salt solution. This contrast may be intensified by dilution of the serum with one or two parts of physiologic sodium chlorid solution before making the test. The occasional highly lipoidal serum which may still remain doubtful can be absolutely controlled by the method of concentration described in this paper, in which the fraction containing the turbid element can be removed without any appreciable loss of antibody. There is a marked contrast between this method and that of Kahn, since he advises mixing by violent agitation for two or three minutes to obtain the best results, while in the ring method, the optimum results are obtained by contact without mixing. The ring test reaches its maximum reaction within one hour at room temperature, and the Kahn method only after several hours.

It was found during the earlier observations that some of the Wassermann positive arachnoid fluids gave

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*From the John McCormick Institute for Infectious Diseases.

1. Herrold, R. D.: A Ring or Contact Precipitation Test for Syphilis, J. A. M. A. **79**: 957-958 (Sept. 16) 1922.
2. Moody, W. B.: Observations on the Precipitin Reaction for Syphilis, J. A. M. A. **80**: 383 (Feb. 10) 1923.
3. Neymann, C. A., and Gager, L. T.: A New Method for Making Wassermann Antigen from Normal Heart Tissue, J. Immunol. **2**: 573 (Oct.) 1917.
4. Kahn, R. L.: A Simple Quantitative Precipitation Test for Syphilis, Arch. Dermat. & Syph. **5**: 570 (May) 1922.
5. Moon, V. H.: The Precipitin Test in the Diagnosis of Syphilis, J. A. M. A. **80**: 1502 (May 26) 1923.

a positive reaction by the method as used with blood serum, but the percentage of negative results was too large to give the test any practical value. This, no doubt, is due to the smaller amount of syphilitic antibody ("reagin") per volume in arachnoid fluid than in blood serum. This is indicated by the results of the Wassermann test, the general rule being to use larger quantities of arachnoid fluid than of serum, and in most instances at least one tube is used with 1 c.c. of undiluted arachnoid fluid.

TABLE 1.—*Titration of Positive Arachnoid Fluid (++++) Mixed with Varying Amounts of Saturated Ammonium Sulphate*

Arachnoid Fluid 3 C.c. Mixed with Amounts Given Below of Saturated Solution of Ammonium Sulphate; the Precipitate in Each Case Dissolved in 0.3 C.c. of Physiologic Sodium Chlorid Solution, C.c.	Results of Precipitation Test with Each Dilution of Cholesterolized Antigen					Results of Wassermann Test with 0.1 C.c. of Each Concentrated Solution
	10	20	40	80	160	
1	0	0	0	0	0	0
1.5	+	+	+	0	0	+++
2	+	+	+	+	0	++++
2.5	+	+	+	+	0	++++
3	+	+	+	+	0	Anticomplementary
3.5	+	+	+	Doubtful	0	Anticomplementary

It occurred to me that if the elements containing the syphilitic "reagin" were thrown down, by means of a certain percentage of saturation with ammonium sulphate, the precipitate might be redissolved in a much smaller quantity of physiologic sodium chlorid solution than the original amount of fluid, so that the reacting substance would be concentrated enough to give consistent results with the precipitation test.

As the first step, strongly Wassermann positive, pooled arachnoid fluids were used, which gave a positive precipitation test undiluted. Varying quantities of saturated ammonium sulphate were added to constant amounts of arachnoid fluid, so that the resulting saturations ranged from 25 to 100 per cent. The centrifugated precipitate of each fraction was redissolved in an amount of physiologic sodium chlorid solution equal to one tenth the original quantity of arachnoid fluid. Comparative quantitative precipitation and Wassermann tests were then made, and, as may be seen in Table 1, the maximum reaction was reached at 40 per cent. saturation. As will be seen later, this reaction point is slightly higher than that of the serum, and may be explained, perhaps, by the higher water content of spinal fluid per volume, thus requiring a slightly greater percentage to throw down all the euglobulins than is necessary with blood serum. This was indicated also by adding increasing quantities of ammonium sulphate to the supernatant fluid of each preceding precipitation when it was found that the higher fractions of pseudoglobulin and protein contained no "reagin" and could be eliminated, thus permitting a high concentration with loss of but a trace of the active substance in the waste.

TABLE 2.—*Comparison of Wassermann and Precipitation Reactions on Arachnoid*

Number of Arachnoid Fluids	Wassermann Test of Arachnoid Fluid	Precipitation Test by Ring Method of Concentrated Fluid
Forty-six	++++	Positive
Sixty-seven	0	0
Three	+++	Positive
Two	++	Positive
Three	+	Positive
One	+	0
Two meningococcal	0	0
Two streptococcal	0	0
One tuberculous	0	0
One normal with addition of gonococcus pus	0	0

The tests in Table 2 represent the results of using 40 per cent. saturation by mixing 3 c.c. of serum and 2 c.c. of saturated ammonium sulphate, and redissolving the sediment in from 0.2 to 0.3 c.c. of salt solution. This need not be absolutely accurate as given, because the centrifugated sediment may be dissolved completely by addition of the salt solution drop by drop, thus securing a maximum concentration which would be of particular value in the case of weakly positive fluids, since the quantity of sediment varies directly in proportion to the strength of the reaction of syphilitic arachnoid fluid. The mixtures of meningococcal, streptococcal and tuberculous arachnoid fluids, however, give a heavy precipitate, but negative precipitation tests after solution. The arachnoid fluid and saturated ammonium sulphate, mixed in the ordinary test tube and left standing from fifteen minutes to one hour, are centrifugated at high speed. The fluids with a small amount of "reagin" require somewhat longer to precipitate; hence it is better that all mixtures with a fine precipitate or no evident precipitate, as is the rule with absolutely negative fluid, should be left standing one hour before centrifugation. The supernatant fluid is poured off, and the tube is inverted and flamed to precipitate the ammonium sulphate and spinal fluid on the side of the tube, thereby minimizing the amount of ammonium sulphate which would be mixed with the salt solution of the precipitate when the tube is placed upright. The results of a series of 128 tests are given in Table 2. Analysis shows a close correspondence between the results of Wassermann tests of whole spinal fluid and the results of the ring tests of concentrated spinal fluid. Control tests of meningococcal, streptococcal, tuberculous and normal arachnoid fluids, as well as with normal fluid mixed with the pus of gonococcal arthritis, all gave negative results.

TABLE 3.—*Titration by Precipitation of a Fractioned Syphilitic Serum (Positive ++++)*

Fractions of Serum; Precipitate Dissolved in Same Amount of Physiologic Sodium Chlorid Solution as Original Serum	Results of Precipitation with Each Dilution of Cholesterolized Antigen							Physiologic Sodium Chlorid Solution Control
	10	20	40	80	160	320	640	
A. Two parts serum and one part saturated solution of ammonium sulphate	+	+	+	+	+	+	0	0
B. Supernatant fluid of Mixture A plus ammonium sulphate to 50 per cent. saturation	+	+	+	+	0	0	0	0
C. Supernatant fluid of Mixture B plus ammonium sulphate to 66 per cent. saturation	0	0	0	0	0	0	0	0
D. Supernatant fluid of Mixture C plus ammonium sulphate to 100 per cent saturation	0	0	0	0	0	0	0	0
Original whole serum	+	+	+	+	+	Doubtful	0	0

The next step was to apply the method to serum in order to work out a test that may be applicable to weakly positive blood serum and to the Wassermann negative serum of the treated case. The concentration here cannot be made to such a degree as in the case of spinal fluid, the maximum concentration being usually

from four to eight times that of the original serum. The first series of tests was made with a strongly positive serum, and the fractions were brought up to the original quantity of serum with physiologic sodium chlorid solution when quantitative precipitation tests were made of each fraction and of the original serum. Additional ammonum sulphate was added to the supernatant fluid of each fractional precipitation. The results in Table 3 show that most of the syphilitic antibody or "reagin" is thrown down with the 33 per cent. fraction, but a distinct reaction was obtained in the lower antigen dilutions of the 33 to 50 per cent. fraction. Above 50 per cent., the precipitation tests were negative.

In the series in Table 4, a constant quantity of positive serum was used in parallel tubes with a varying quantity of saturated ammonium sulphate. Quantitative precipitation tests were made of the whole serum and of each fraction; Wassermann tests were made of 0.1 c.c. of the whole serum and of 0.1 c.c. of a 1:10 dilution of each fraction. Because of anticomplementary reactions with the Wassermann test of the fractions with ammonium sulphate, particularly of the higher fractions when concentrated, the precipitation test becomes the only method in this case for quantitative titration. The maximum precipitation was reached at the 33 per cent., or euglobulin fraction, and there is apparently no advantage in retaining the precipitates except perhaps just within the borderline above.

TABLE 4.—*Titration of Various Fractions of a Syphilitic Serum by Addition of Varying Quantities of Ammonium Sulphate*

0.9 C.c. of Serum and Saturated Solution of Ammonium Sulphate as Below; Precipitates in 0.9 C.c. of Physiologic Sodium Chlorid Solution, C.c.	Results of Precipitation with Varying Dilutions of Cholesterolized Antigen							Results of Wassermann Test with 0.1 C.c. of 1:10 Dilution
	10	20	30	40	60	80	120	160	
0.28	+	+	0	0	0	0	0	0	+++
0.3	+	+	+	+	+	0	0	0	+++
0.4	+	+	+	+	+	+	Doubtful	0	++++
0.45	+	+	+	+	+	+	+	0	++++
0.5	+	+	+	+	+	+	+	0	++++
0.8	+	+	+	+	+	+	+	0	++++
0.9	+	+	+	+	+	+	+	0	Anticomplementary
1.2	+	+	+	+	+	+	Doubtful	0	Anticomplementary
Whole serum	+	+	+	+	+	+	Doubtful	0	+++

In the series in Table 5, a constant quantity of positive serum was used in parallel tubes with a varying quantity of saturated ammonium sulphate. Quantitative precipitation tests were made of the whole serum and of each fraction; Wassermann tests were made of 0.1 c.c. of the whole serum and of 0.1 c.c. of a 1:10 dilution of each fraction. Because of anticomplementary reactions with the Wassermann test of the fractions with ammonium sulphate, particularly of the higher fractions when concentrated, the precipitation test becomes the only method in this case for quantitative titration. The maximum precipitation was reached at the 33 per cent., or euglobulin fraction, and there is apparently no advantage in retaining the precipitates except perhaps just within the borderline above.

It was noticed that there was some opacity in the solution of the euglobulin fraction, which sometimes interfered with the reading of the precipitation test and also prevented as clear a solution as desired for concentration. To obtain the most practical solutions, experiments were made, using 1 c.c. of serum, and starting with that amount of saturated ammonium sulphate which just threw down a definite precipitate. This was found to be approximately 0.35 c.c. of saturated ammonium sulphate for each cubic centimeter of serum. To the supernatant fluid of the mixture and of each succeeding mixture, 0.15 c.c. of saturated ammonium sulphate solution was added, and the precipitate redissolved in 0.2 c.c. of physiologic sodium chlorid solution, which is one fifth the original quantity of serum.

Table 5 illustrates that the maximum results were obtained with solution of the precipitate from the addition of 0.15 c.c. of ammonium sulphate to the first supernatant fluid. It was noted, which is of great importance for practical work, that the solution of the first precipitate retains all of the opacity, but very little of the "reagin," while the second solution is perfectly clear. The method chosen for a series of tests was to add 0.35 c.c. of a saturated solution of ammonium sulphate to 1 c.c. of serum. The mixture was centrifugated for a few minutes at high speed, and 0.15 c.c. of saturated solution of ammonium sulphate was then added to the supernatant fluid. The centrifugated precipitate of the second mixture was dissolved in 0.2 c.c. of salt solution, and the ring test was made with 1:10 dilution of cholesterolized antigen. No doubt the precipitate would frequently have dissolved in smaller amounts of salt solution, which could be added drop by drop until solution resulted. A series of 100 serums were then tested by this method. The majority of the serums were weakly positive or negative in the Wassermann tests, and were from syphilitic patients who had received or were receiving treatment. The results are given in Table 6, and indicate that a more sensitive reaction may be secured by this method than by the Wassermann or precipitation test of whole serum, since in several treated cases with negative Wassermann reactions, positive precipitation results were obtained. In one instance, with a positive dark field, the serum which gave negative Wassermann and precipitation reactions in the usual way gave positive reactions when concentrated.

TABLE 5.—*Fractioning of 1 c.c. of Positive Serum to Determine Most Practical Fraction for Routine Tests by Concentration Method*

Serum—Saturated Ammonium Sulphate Mixture; Precipitate Dissolved in 0.2 C.c. Physiologic Sodium Chlorid Solution	Results of Precipitation with Each Dilution of Cholesterolized Antigen					
	10	20	40	80	160	320
A. 1 c.c. serum and 0.35 c.c. saturated solution of ammonium sulphate	+	Doubtful	0	0	0	0
B. Supernatant fluid of Mixture A plus 0.15 c.c. saturated solution of ammonium sulphate	+	+	+	+	+	0
C. Supernatant fluid of Mixture B plus 0.15 c.c. saturated solution of ammonium sulphate	+	+	+	0	0	0
D. Supernatant fluid of Mixture C plus 0.15 c.c. saturated solution of ammonium sulphate	+	0	0	0	0	0
E. Supernatant fluid of Mixture D plus 0.15 c.c. saturated solution of ammonium sulphate	0	0	0	0	0	0
Whole serum	+	+	+	0	0	0

TABLE 6.—*Results of Ring Precipitation Tests of Concentrated Serums*

Number of Cases	Results of Wassermann Tests	Results of Precipitation Tests of Serums of Treated Patients		Results of Precipitation Tests of Serums of Untreated Patients	
		Number Positive	Number Negative	Number Positive	Number Negative
12	++++	2	0	10	0
9	+++	4	0	5	0
18	++	16	0	2	0
13	+	9	1	3	1
58	0	14	19	1	14

To the completion of the work, a recent article by Harold[6] was encountered, in which he states that the syphilitic antibodies are found entirely in the euglobulin fraction as determined by the ammonium sulphate and acetic acid method of precipitation. He made Wassermann tests of the solution of the fractional precipitate. Ruppel,[7] a little later, also found that the euglobulin

6. Harold, C. H. H.: The Euglobulin Group and Its Relationship to the Wassermann Reaction, J. Roy. Army M. Corps **20**: 83-97 (Aug.) 1922.

7. Ruppel: Lyophile und Lyophobe Eiweisskörper, Deutsch. med. Wchnschr. **49**: 46 (Jan. 12) 1923.

contains the syphilitic antibodies. Mackie [8] divided the serum into three fractions by a carbonic acid method of precipitation, and designated them as: "A, carbonic acid insoluble globulin; B, carbonic acid soluble pseudoglobulin, and C, albumin." He states that the property of giving positive Sachs-Georgi reactions is retained by fraction B, while A is inactive, but on mixing A and B, the reaction is inhibited. He also found that the more active element for the Wassermann test was in fraction A, although B gave a weak reaction, and he concludes that the "reagins" responsible for the Wassermann and Sachs-Georgi reaction are independent. In my work, the results with the euglobulin fraction obtained by 33 per cent. saturation of serum show clearly that most of the syphilitic antibody or "reagin" is precipitated at this point, but some is usually found in the fractions immediately higher. Harold based his conclusion more on the precipitation by acetic acid, and it is possible that with the ammonium sulphate method the euglobulin is not completely thrown down at 33 per cent., and that the remaining euglobulin, which is precipitated at the greater saturation, is sufficient to give the degree of reaction obtained. It seems evident that, for purposes of practical application, the fraction above 33 per cent. can be discarded, and certainly that above 40 per cent. of saturation. Further experiments may determine a more optimum fraction for concentration, but the results so far indicate that future development of increased sensitiveness of tests for the diagnosis of syphilis will be more fruitful if attempts are made at the point of concentration of the antibody or "reagin" in a solution that is as nearly free as possible of protein and other elements which are not essential to the reaction.

It seems fair to assure that results of value may be obtained by carefully following the treatment of patients with precipitation tests of concentrated serum or arachnoid fluid.

CONCLUSIONS

The ring or contact precipitation test for the diagnosis of syphilis has been successfully applied to the arachnoid fluid by means of a single and practical method of concentration. This is accomplished by adding a saturated solution of ammonium sulphate to the fluid, and redissolving the precipitate in physiologic sodium chlorid solution in a quantity equal to a fractional amount of the original fluid.

The euglobulin fraction has been found to contain almost all of the syphilitic antibody or "reagin" in serum, as indicated by the precipitation and Wassermann tests of solutions of fractional precipitates obtained by the ammonium sulphate method.

The precipitated fraction containing the "reagin" in serum may be dissolved in physiologic sodium chlorid solution in amounts much less than the original quantity of whole serum, and, thus concentrated, it gives a more sensitive test than the whole serum. A practical method for routine use has been described and applied to a series of 100 cases, the majority being in patients treated for syphilis in most of whom the serum was either weakly positive or negative on Wassermann test of the whole serum; and the results in this series indicate that the method of concentration and ring precipitation gives a more sensitive test than reactions with whole serum. The method outlined may prove a valuable aid in the control of treatment.

8. Mackie, T. J.: Serum Constituents Responsible for Wassermann and Sachs-Georgi Reactions, J. Path. & Bacteriol. 26: 130 (Jan.) 1923.

THE PREVENTION OF CERTAIN FORMS OF CHRONIC CARDIAC VALVULAR DISEASE *

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Until recently, perhaps few persons, even physicians of long experience in large general hospitals, have realized the magnitude of the "cardiac problem," from whatever standpoint it is approached. Heart disease has become, in this country at least, the most important of the causes of death. According to the estimate of Knight,[1] some 180,000 persons in continental United States and Canada died last year of heart disease.

Tables and estimates of mortality, however, give but incomplete evidence of the prevalence of heart disease, because many deaths recorded as from pneumonia and other infections, for example, probably would not have occurred except for coexisting disease of the heart. It has been estimated that 200,000 children of school age in the United States have heart disease.

Facts such as these make it apparent that heart disease is perhaps the most pressing public health problem confronting the medical profession today. And because of the magnitude of the problem, any contribution to its solution is to be welcomed.

The conception that endocarditis might heal without crippling the heart first presented itself to me [2] in 1897, when I had under my care a patient with endocarditis who recovered and whose heart was found to be normal two and one-half years afterward. An obvious corollary from this conception is that, if any means can be found of hastening the healing of the valves, it might be possible to prevent the development of chronic valvular disease in at least some cases. Since 1897, these questions have engaged my attention.

Before proceeding further, it will be advisable to define the limits of the discussion and the significance of some of the terms that will be employed. The discussion is based entirely on clinical observations and, while I am aware of the frequency with which the myocardium becomes involved along with the valves in endocarditis, it is to the valves especially that I would direct attention.

The forms of heart disease here referred to are those occurring for the most part in children, adolescents and young adults, which are infective in nature, and which, for lack of more precise knowledge, may be classified broadly as rheumatic. The term endocarditis will be restricted to an existing inflammation of the endocardium. The term chronic valvular disease will denote permanent deformity of a valve or valves which interferes with their proper functioning.

All previous attempts to prevent these forms of heart disease have been limited, so far as a careful search of the literature reveals, to the removal of foci from which infections of the endocardium are believed to arise, and to the closing of supposed atria of infection. Such attempts at prevention are of great importance, but years of trial will be required to test their effectiveness.

* Read before the Association of American Physicians, Atlantic City, N. J., May 1, 1923.

† From the Department of Medicine, University and Bellevue Hospital Medical College.

1. Knight: Life Waste in 1922—Its Warning and Its Lesson, Proc. Sixteenth Annual Meeting, Association of Life Insurance Presidents, New York, 1922, p. 25.

2. Coleman, Warren: Acute Infective Endocarditis Following Vaccination: Recovery, Philadelphia M. J. 6: 1193, 1900.

The plan to which I wish to direct attention relates rather to the management of cases after infection of the valve has occurred, and is based on the assumption that inflamed cardiac valves are susceptible of successful repair.

HEALING OF THE INFLAMED ENDOCARDIUM

Clinical observation long ago led to the belief that the inflamed endocardium is susceptible of healing; the demonstration postmortem of the process of repair, partial or complete, removes all doubt concerning the question.

The frequency with which the endocardium heals, however, seems scarcely to be realized. My own belief is that healing occurs in the great majority of cases of rheumatic endocarditis; exceptions to be mentioned are the cases cut short by accidents, such as embolism, and by unusual myocardial involvement. There is also the possibility that in some cases a low-grade inflammatory process becomes established and persists perhaps for years. Unless the inflamed valves in the rheumatic forms of endocarditis heal, it would be difficult to explain the large number of cases of chronic valvular disease in adults, the beginnings of which may be traced to childhood. In fact, the very deformities of the valves may be adduced as evidence that the valves have healed, even though the result is failure from the physiologic standpoint.

HEALING OF THE VALVES WITHOUT DEFORMITY

In endocarditis, the normal functioning of the valves may be impaired in at least two ways: by (1) vegetations so situated that they prevent perfect approximation of the cusps or leaflets, and by (2) swelling and distortion of the segments. In either case a murmur would probably develop, in both cases it is conceivable that the murmurs might disappear when the valves heal; that is, after the shrinking of vegetations, the subsidence of the swelling, and the return of flexibility to the leaflets, the competence of the valve may be completely restored. On no other hypothesis can one explain the disappearance of obstructive murmurs (mitral presystolic and aortic systolic), which develop during an attack of rheumatic fever, weeks or perhaps months after the attack has subsided.

When valves heal without sufficient deformity to produce a murmur, there may remain no clinical evidence of previous disease unless such evidence results from coincident involvement of the myocardium. Case 1, which is typical, illustrates this fact:

CASE 1.—A boy, aged 13 years, in 1909 developed acute endocarditis with slight fever (from 99 to 100 F.) and moderate anemia. At various times during his illness, three cardiac murmurs appeared (mitral presystolic, mitral systolic and aortic systolic) which were not constantly present.

Although the disease persisted for nearly two years, the boy made a complete recovery and has remained well. He entered the army as a private, in July, 1918, and was put through the usual routine, suffered from a severe attack of influenza during his service, and was discharged as "fit," in January, 1919. In February, I found the left border of his heart 1.5 cm. within the nipple-line, with normal rhythm and no murmurs. The left border of the heart was still well within the nipple line, April 26, 1923, there were no murmurs, and the exercise reaction was normal. In this patient's history is to be found the only clue to the previous attack of endocarditis.

There is a type of case, however, following endocarditis, which is directly referable to the temporary incompetence of the valves, although possibly in part to coincident myocarditis. I refer to cases of cardiac enlargement (hypertrophy or dilatation, or both) in early life, without murmurs, for which none of the commonly accepted causes of enlargement may be found. Case 2 is a typical example:

CASE 2.—A boy, aged 5 years, during an attack of chorea, developed aortic systolic, mitral presystolic and mitral systolic murmurs, with hypertrophy and dilatation. The left border of the heart extended well beyond the nipple line. A year later all the murmurs had disappeared, though the hypertrophy and dilatation persisted.

At the last examination, two years later, enlargement was the only remaining evidence of previous disease of the heart.

In cases such as this, the hypertrophy remains after the valves have healed and the murmurs have disappeared. How long such hypertrophy may persist must be left, for the present, an open question, though I am disposed to think it may be permanent. Case 3 lends support to this opinion:

CASE 3.—A boy, aged 10 years, with infected tonsils and enlarged adenoids, developed endocarditis with murmurs. Exercise was restricted until he was 21. At present, in his twenty-eighth year, no murmurs are present but the heart is markedly hypertrophied, measuring 3.5 cm. to the right and 11.5 cm. to the left of the midline (3.5 cm. outside the nipple line).

I believe that cases of hypertrophy originating during the course of endocarditis which heals without deformity of the valves are relatively common. At least, since my attention has been directed to this form of hypertrophy, I have seen an increasing number of cases which could be most easily explained on such an hypothesis. This type of case also has a direct bearing on the question of the so-called athlete's heart, but it would lead too far to discuss the matter at this time.

PERMANENT DEFORMITY

When permanent deformity of a cardiac valve is not due to destruction of a portion of the valve, it is attributable directly to the process of repair. Vegetations are organized (and possibly calcified), adjacent segments (or chordae) fuse, and leaflets are thickened and distorted by scar tissue.

It is probable that, in the process of repair in the endocardium, the amount of new connective tissue formed is proportional to the extent of the original injury and to the duration of the inflammatory process. After the lighter grades of endocarditis the function of the valve may be completely restored, as has been pointed out; when the injury is more severe, or the inflammation more prolonged, the valve may be distorted to such a degree that it is rendered permanently incompetent—and the slow contraction of the scar tissue serves only to increase the deformity.

There is still another way, in this group of cases, in which the cardiac valves may become permanently deformed; that is, through recurrent attacks of endocarditis. As is well known from clinical and pathologic observations, damaged valves readily become reinfected, and each succeeding attack of endocarditis leaves behind its increment of scar tissue to cause, or to increase an existing, deformity. Statistics are not yet available to indicate what proportion of cases of healed endocarditis become reinfected, but it is probably large.

For the purpose of bringing out information concerning the etiologic relationship of recurrent attacks of endocarditis to chronic valvular disease, several

years ago I requested Dr. Douglas Symmers to bear the question in mind in necropsies on patients dying of, or with, these diseases. He states that:

> It is a matter of not infrequent observation at necropsy that the heart valves, particularly those on the left side, exhibit sclerotic or even calcific changes without anatomic indications or a clinical history of functional disturbances. This, I think, is due to the fact that all of the heart valves are larger than is actually necessary in order to meet the demands made on them; that is to say, that, above the line of closure, there is a quantity of valve tissue which must be dispensed with before regurgitation can occur, and, on the other hand, that sclerotic heart valves commonly offer no stenosis to the normal passage of blood. Sclerosis of the heart valve in these circumstances represents the end-stage of the process of healing. That sclerotic heart valves may be reinfected is shown by the not infrequent discovery at necropsy of vegetations on them in different stages of repair. By this I mean to say that there is anatomic evidence which indicates that an individual may recover from an attack of valvulitis, sustaining sclerosis of the valve, but without impairment of its function; secondly, that a sclerotic valve may become reinfected on one or more occasions and that, ultimately, function is impaired as a result of retraction on the one hand or stenosis on the other.

From my clinical experience I am inclined to believe that recurrent attacks of endocarditis play a not inconspicuous rôle in the development of chronic valvular disease. The sequence of events was clearly illustrated in Case 4:

> Case 4.—A boy, aged 11 years, whose tonsils had been removed in his fifth year and adenoids in his eighth year, developed an attack of rheumatic fever in April, 1919. The mitral and aortic valves were affected during this attack, and aortic obstructive and double mitral murmurs appeared.
>
> By June, 1920, the murmurs had disappeared; the heart was of normal size and the exercise reaction was normal. Again in December, 1920, the heart was found to be normal in every respect.
>
> In January, 1921, at boarding school, the boy was put to bed for a "cold." While in bed, he developed severe pains in the muscles of the thighs which lasted for four days. After being up and about for a few days, his heart suddenly dilated and his condition caused great alarm. At the Easter vacation (when I saw him) there were a systolic and a diastolic murmur at the aortic orifice, with mitral regurgitation and marked enlargement of the heart.
>
> Both aortic murmurs were present in December, 1922, and the enlargement of the heart persisted.

Clearly, then, in this case, the first attack of endocarditis healed with complete restoration of the function of the aortic and mitral valves. Though the valves undoubtedly bore scars from the recent inflammation, their repair had been successful from the physiologic point of view. The second attack of endocarditis, however, has caused what, so far, appears to be permanent deformity. Whether the aortic valve may again become competent, only the future will determine—just a little more than a year has elapsed since the second attack of endocarditis.

DIAGNOSIS

Based, as my suggestions are, on the conviction that inflamed cardiac valves possess the power of healing, that their healing may be promoted and that the tendency to recurrent attacks of inflammation may be lessened, it is obvious that success in the treatment of endocarditis stands in close relationship to the early recognition of the condition.

In the absence of murmurs, the existence of endocarditis may only be suspected; but, as is well known, not all cardiac murmurs have a pathologic basis: the organic must be differentiated from functional murmurs. I shall not attempt at this time to evaluate the various criteria which have been put forward as characteristic, respectively, of functional and of organic murmurs. I shall say only that I feel far less confident than formerly of being able to distinguish them.

The early diagnosis of endocarditis does not rest on examination of the heart alone. Evidences of a constitutional reaction must be sought, and they may appear insignificant. Approaching the diagnosis from this direction, if a child or adolescent is reported to be out of sorts, or is anemic, or exhibits a low-grade continuous or recurring fever (say from 99 to 100 F.) for which no obvious cause can be found, careful attention should be given to the possible existence of endocarditis. Such patients should not be dismissed with the diagnosis of an "ailment of childhood" and the comforting advice to the parents that "he will outgrow it." The history of the patient may furnish important clues to a correct diagnosis, and such information as may be obtained from the blood picture or blood cultures should be utilized.

The diagnosis of recurrent attacks of endocarditis rests on essentially similar considerations.

No less important than the early recognition of endocarditis is the determination of the approximate time at which the inflammation subsides. The difficulties that stand in the way are obvious. The persistence of murmurs cannot be interpreted to mean that inflammation is still present. On the contrary, however, the persistence of constitutional symptoms undoubtedly signifies that the inflammatory process is still active. The prolongation of apparent convalescence will always bear most careful investigation. Yet, after all has been said, the question, "Have the valves healed?" must not infrequently remain unanswered. And treatment should not permanently be interrupted until this question may be answered with reasonable assurance in the affirmative.

TREATMENT

There are two main objectives in the treatment of endocarditis: (1) the reduction of the work of the heart to a minimum, and (2) the protection of the patient from all influences which may lower resistance, especially exposure.

These objectives may be reached only by keeping the patient in bed. Rest in bed usually reduces the rate of the heart, often as many as twenty or more beats a minute, and lessens the injury to the valves which is incident to their closure. The dire consequences of exposure, to patients recently recovered from acute articular rheumatism, furnish a strong argument in favor of maintaining the body of a patient with rheumatic endocarditis at an equable temperature. Other analogies may readily be called to mind.

The mere recommendation of rest in bed for patients with endocarditis, of course, presents nothing new. In cases of endocarditis with active fever, or with serious involvement of the myocardium, or in cases which develop in the course of rheumatic fever, the necessity of putting the patient to bed is obvious. But it is not primarily such cases that I have in mind; it is rather those in which there are murmurs which, on superficial examination, might be interpreted as functional, and in which the constitutional reaction will escape attention unless seemingly insignificant symptoms are given their true perspective. If the patient

is not put to bed and kept there, the cardiac valves are not given the fullest opportunity to heal, the inflammatory process is prolonged, and recurrent attacks of endocarditis are invited. The progressive course of many cases of mitral stenosis, for example, seems scarcely due to the injury wrought by a single attack of endocarditis of even relatively long duration.

The length of time which patients with rheumatic endocarditis should be kept in bed varies with each case. The only general recommendation which is applicable to all is that no patient should be allowed to get up until after the disappearance of the constitutional symptoms. At times a slight relative increase in the polymorphonuclear cells may be the only evidence that the constitutional reaction has not subsided.

In my own experience, the duration of the confinement to bed has varied from several months to two years. When the longer periods of rest are necessary, one of the most difficult problems is to gain the cooperation of the parents. The decision to permit a patient to get up must always be tentative. At first the same close supervision as when the patient was in bed is necessary, and at the return of any unfavorable symptoms the bed-treatment must be resumed. Healing valves readily become reinfected, and ample time should be allowed for their recovery.

In Case 1, the constitutional symptoms persisted for nearly eighteen months. The patient was then allowed to get up. The symptoms quickly returned, however, and he was put back to bed for six months more. When at last he was out of bed he was unable to stand, but with massage and carefully regulated exercises the power of the muscles soon returned. For the next six years the boy's activities were carefully supervised, that is, until 1917. Since then there have been no restrictions whatever on him.

If justification for such a plan of treatment is required, the answer is that the spending of two years of one's childhood or youth in bed is not an excessive price to pay for a normal heart.

All patients who have had acute or recurrent attacks of endocarditis, especially children and adolescents, should be kept under observation for years. Nor should they be dismissed even after thorough examination of the heart until the next periodic examination of the heart.

Examinations of the blood and careful readings of the body temperature extending over several weeks should be made at intervals and be submitted to the physician. Only in this way may the earliest stages of recurrent attacks be detected, and recurrences should be treated in the same manner as first attacks.

CONCLUSIONS

1. In rheumatic endocarditis, the tendency of the inflamed valves is to heal; they may heal without deformity and there may remain no clinical evidence of previous disease, or the heart may remain enlarged as a result of the temporary incompetence of the valves.

2. The permanent deformity of the cardiac valves in many cases of chronic valvular disease is probably due to recurrent attacks of endocarditis.

3. Healing of the valves is promoted by keeping the patient in bed; this treatment should be maintained until after the disappearance of all constitutional symptoms.

58 West Fifty-Fifth Street.

Clinical Notes, Suggestions, and New Instruments

A CASE OF MYXEDEMA IN WHICH THE BASAL METABOLIC RATE WAS MINUS FIFTY-SIX PER CENT.*

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This case is presented because of the low basal metabolism: minus 56 per cent. This is, as far as we can determine, the lowest reading that has been recorded.[1]

REPORT OF CASE

A single woman, aged 44, was admitted to the Boston Psychopathic Hospital, Nov. 5, 1922, apparently somewhat confused and disoriented. The family history was negative for endocrine disorders or mental disease, most of the ancestors having died of cardiac or arteriosclerotic conditions.

The patient was born in Massachusetts, Aug. 23, 1878. The birth had been normal; she had been a full-term baby, weighing 8½ pounds (3.8 kg.). She had been a healthy, bottle-fed infant. Dentition had been normal. She had walked at 20 months. She had had the usual infectious diseases of childhood, including pneumonia at 12 and scarlet fever at 15. There was no history of convulsions, chorea, sleep walking, nail biting or tantrums. She was not regarded as a neurotic, high strung child, or as being abnormally placid.

The patient had attended school from her fifth to her seventeenth year, and was said to have been a bright girl but always worried over her school work. She did not graduate from high school because she failed in chemistry and one other subject.

The menses were established at the age of 17. They were never regular, being usually from six to eight weeks apart and occasionally very profuse. For example, in March, 1922, her period lasted five weeks. In June or July she had a menstrual period of from six to seven weeks and lost much blood. At times she had had dysmenorrhea.

The patient had worked for a dressmaker for a year or two when she was about 20 years of age. Then she went to a business college for nine months. After this she obtained a clerical position in a store and remained there for two years. Next she came to Boston and continued work in a clerical capacity. She was secretary of one company for a time and held a very responsible position. She is said to have been quite proficient, and her work had always been satisfactory. She continued to work until September, 1922.

Of her habits, it was said that she had never used alcohol or drugs and had had no love affairs. She was quite devoted to her brother, and was much upset when he married about four years previously and left her.

Concerning the patient's personality, there were conflicting data. According to the mother, the patient was a very mild, placid child; every one was fond of her, and she was sociable. On the other hand, there was some outside information that she had an ugly disposition and had always been erratic and peculiar.

The patient's first nervous symptoms appeared twelve years previously, after the death of a favorite aunt. Following this the patient complained of loss of strength. She found it hard to walk upstairs. She is said to have had plenty of ambition, however, but simply lacked physical stamina. She kept on at work. After about five or six years, she obtained a six months' leave of absence because her head would get tired, her legs would feel weak and she seemed unable to carry on ordinary work. She is said to have had a "nervous breakdown" in March, 1921, following the death of her father. She talked continually about fearing that she would die and of having heart trouble. She became very weak and could not be induced to eat, saying that food did not taste

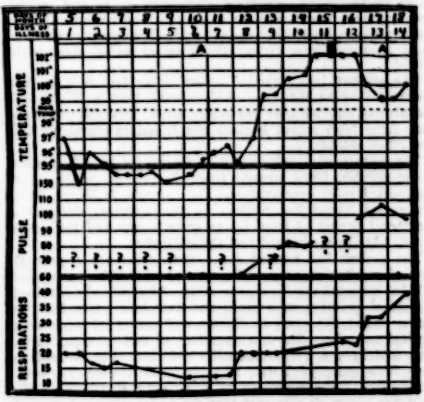
* From the Boston Psychopathic Hospital.

1. Personal communications from Drs. J. H. Means, C. C. Sturgis and Walter M. Boothby state that the lowest basal metabolic rate recorded at the Massachusetts General Hospital, the Peter Bent Brigham Hospital and the Mayo Clinic is minus 49 per cent.

good and imagining that everything she ate would hurt her. She was in bed for about three weeks, but gradually recovered, and by June seemed quite herself again mentally but was still easily fatigued. In September she started to work, but gave it up after three weeks because she had contracted a slight cold and complained of "weakness." In the latter part of October, 1922, about a week before admission, she told the neighbors that her mother was deranged and that she did not wish to be left alone with her. She would try to telephone her friends or to go out and see the neighbors to tell them that her mother was crazy. Two days before admission she began to shriek and scream. She wanted all the neighbors called in, and said that her mother was trying to give her too much bromid to quiet her. She told the physician that her mother was going to die. He administered morphin and scopolamin to quiet her.

The family had noticed that for the last twelve or fifteen years she had puffiness of her face and swollen lids. This had been especially noticeable when she was nervous. The skin had had a yellow hue for possibly ten years, and her voice had been thick for the last year.

On admission to the hospital the patient was in a stuporous condition. She could not speak intelligibly but uttered thick



Record of temperature, pulse and respiration in a case of myxedema: *A, A*, thyroid treatment started; *B*, thyroid discontinued.

incomprehensible sounds; she could not open her eyes without assistance, and she was unable to raise her right arm any distance from her side and could not grasp with her right hand. She understood and obeyed simple commands, such as to protrude her tongue. When asked if she was happy, she consistently nodded in the affirmative, and when asked if she was unhappy, she would shake her head.

The patient was short and heavy-set, with a sparse growth of coarse, black hair on her head. The skin was of a lemon-yellow hue and was dry, harsh and desquamating, but only moderately thickened. There was scant pubic hair and no axillary hair. The patient could not stand without aid. There was questionable weakness of the right side of the face and the right arm. The pupils were equal and reacted sluggishly to light; the left was very slightly irregular. Ophthalmoscopic examination showed the right disk to be pale, and the left disk less definitely so. There was some weakness of the right external rectus muscle. The abdominal reflexes were not elicited, but other reflexes were normal. The tongue was large, red, shiny and smooth. The thyroid was not palpable. The heart was essentially normal, the rate being 60. The blood pressure on admission was 158 systolic and 120 diastolic. The next day it was 115 systolic and 80 diastolic. The radial pulses were consistently so faint that the pulse rate could not be estimated. The urine had a specific gravity of 1.014, was acid, and showed a very slight trace of albumin and many hyaline casts. No sugar or bile was present. The albumin and casts disappeared during the first week. Blood examination revealed: hemoglobin, 80 per cent. (Sahli); red blood cells, 4,160,000; white blood cells, 13,400; polymorphonuclears, 88 per cent.; lymphocytes, 8 per cent.; large mononuclears, 2 per cent.; eosinophils, 2 per cent. The red blood cells appeared normal. The phenolsulphonephthalein test gave 50 per cent. excretion in 85 c.c. of urine in two hours and ten minutes. The basal metabolism determination, November 8, showed a reading of minus 56 per cent. (figured according to the Aub-Du Bois standards). This is the average of two determinations checking within 5 per cent., made with the Benedict portable apparatus. The blood sugar curve was as follows: The blood, fasting, contained 134 mg. of dextrose. One hour after sugar was taken, it was 144 mg.; two hours, 160 mg.; three hours, 170 mg. The nonprotein nitrogen of the blood was 44.1 mg. for each hundred cubic centimeters.

The patient showed very little change for the first five days in the hospital. She was dull, listless and apathetic, lay quietly in bed with her eyes closed, and apparently understood some of the things said to her. It was necessary to catheterize her. She was put on a milk diet. November 10, the administration of thyroid, 2 grains (0.1 gm.) five times daily was begun. November 11, she seemed a little brighter; she voided urine without the aid of a catheter. She continued to improve for the next two days. Her temperature rose from between 94 and 95 F., where it had been up to this time, to about 96 or 97. A basal metabolism estimation, November 12, was minus 46 per cent. On the morning of November 13, it was noted that she seemed much brighter; she opened her eyes, waved her left hand and smiled. She tried to write for the nurses and made some effort to speak. She could not read communications written for her. That evening she vomited. Her temperature had risen to 99.4 F. The next day, November 14, she continued to be nauseated and vomited. The thyroid was discontinued after the first dose that day. She was given sodium phosphate and an enema. At times she moaned as if in pain. November 15, her temperature was 102 F. She took no nourishment and had to be tube-fed. Her condition continued unchanged throughout the 16th, but the temperature returned to normal on the 17th. At that time the pulse rate was 108; respirations, 32. The lungs were examined carefully, but no evidence of any involvement was found, nor was any other cause for the pyrexia. The white blood cell count was 19,000. Thyroid, 2 grains (0.1 gm.), was given three times during the 18th, and her condition seemed unchanged. On the morning of the 19th, the stupor gradually deepened, respirations increased, and the patient died. Permission for a necropsy was refused.

COMMENT

1. The condition of hypothyroidism remained undiagnosed for twelve years and was discovered only because the patient presented mental symptoms sufficient to demand hospitalization.

2. The patient probably had a "complete myxedema" with the lowest basal metabolic rate as yet recorded as far as we can ascertain.

3. In spite of the long duration and completeness of the myxedema, renal function was little impaired, although there was evidence of renal damage.

Suicide Statistics.—An investigation by John Rice Miner, associate in biometry and vital statistics in the Johns Hopkins School of Hygiene and Public Health, showed that May and June are the most popular months for committing suicide, and December and January the least favored. Other outstanding features of the report of the investigation show that fewer married persons commit suicide than single or widowed persons, and fewer parents commit suicide than persons without children. Urban rates are higher than rural, the rate among farmers and others employed in steady manual labor in the open air being very low. High suicide rates are found among persons engaged in the professions (except clergy and teachers).

A CASE OF IRITIS AND ONE OF CORNEAL ULCER CURED BY TONSILLECTOMY

RICHARD M. NELSON, M.D., ATLANTA, GA.
Visiting Ophthalmologist, Georgia Baptist Hospital

Mrs. M. D. S., aged 20, housewife, consulted me, June 8, 1922, for a corneal ulcer of the right eye complicated by severe iritis. Physical examination was negative except for the eye trouble and a bad chronic tonsillitis. The Wassermann blood tests and urinalysis were negative. In December, 1920, I had advised tonsillectomy for the chronic tonsillitis found then. At that time I also noted some faint corneal scars in the right eye, and learned that four years previously this patient had been many weeks under treatment for corneal ulcer. For three weeks the usual methods of treatment were tried, with little real improvement. Believing the tonsillitis to be the cause of the eye inflammation, I again urged operation. The tonsils, on removal, showed many crypts filled with cheesy and purulent material. Within twenty-four hours the pain, the photophobia and the ciliary congestion were all greatly lessened, and within a week, practically all evidence of both corneal ulcer and iritis was gone.

E. H., a boy, aged 15, a bank employee, came to me, Feb. 2, 1923, for treatment of an unusually severe acute iritis of the right eye. There was no history of previous eye disease or defect, but there was a definite history of repeated attacks of acute tonsillitis followed by "rheumatism" every year for the last three years. Several internists had advised tonsillectomy to cure the chronic tonsillitis, and as a probable cure of the "rheumatism." Physical examination was negative except for the eye and throat conditions. The Wassermann blood tests and urinalysis were negative. A thorough trial of the usual methods of treatment of iritis gave only slight improvement by February 9, when I removed the badly diseased tonsils and adenoids. By the next day all the eye symptoms had vanished. All local eye treatment and internal medication had been stopped the night before the operation and were never resumed.

From all reports received, both these patients have enjoyed excellent health in every way to the present time, June 6, 1923.

828 Candler Building.

A NEW BITE BLOCK FOR PERORAL PROCEDURES IN CHILDREN *

WILLIAM FREDERIC MOORE, M.D., PHILADELPHIA
Assistant, Bronchoscopic Clinic, Jefferson Hospital

The importance of a mouth gag that can be securely held by the same assistant who holds the head is realized by laryngologists, who all, at times, must work in the throat of unanesthetized children for various purposes, such as palpation for retropharyngeal abscess, palpation for adenoids, intubation and bronchoscopy. Self-retaining mouth gags, useful in anesthetized patients, are not satisfactory for this purpose.

The thimble idea, original with Dr. John W. Boyce, presents many advantages, but the thimbles so far devised are not easily kept in position by most men without encroaching so much on the relatively small oral cavity of children as to interfere with the operator.

Fig. 1.—New bite block.

The instrument is made of brass, the lines of the old bite block being followed as far as the alveolar wedge is concerned, but in the child's size the width is decreased so that the block encroaches less on the oral cavity. The main departure is in the finger hold. The insertion, instead of being placed in the body of the block and coming in at the top, is superimposed at the base of the wedge, and runs at a right angle. A ridge of metal has been placed in the finger hold in order to aid in retention.

The thimble shown in Figure 1 has been thoroughly tested in the Bronchoscopic Clinic and has been found absolutely ideal by both assistants and operators.

As will be seen in Figure 2, the angle at which the interdental part is placed on the digital part obviates the uncomfortable and, for some men, impossible extreme flexion of the finger, and yet the interdental part does not intrude within the inner line of the alveolar arches, nor does it unduly drag the oral orifice sidewise.

Fig. 2.—Bite block in position for intubating.

The bite block is also made in an adult size, which is especially useful in bronchoscopy and esophagoscopy. In this block, the same general idea is carried out as in the children's block—the base of the wedge is practically of the same width as the old bite block, but the serrations on the biting faces are much deeper and are run at an angle, which insures apposition on the teeth at a right angle. The serrated face of the block slopes in straight lines to the apex of the wedge, which is rounded, to prevent trauma.

The bite blocks formerly used were of aluminum. Lightness, however, is not an important factor in this work, as it will be found that the heavier instrument of brass, when inserted, stays in place much better, without tiring the finger or causing inconvenience to the patient. Furthermore, aluminum is roughened and corroded by boiling.

When treating suppurative conditions of the lungs bronchoscopically, it will be found that the assistant can maintain the correct position of the head much easier, and, at the same time, he can increase the distance between himself and the patient.

The Boyce position, which requires a raised, extended position of the head, lessens the space between the occiput and the heavy shoulder muscles. With the old bite block, this space was taken up rather fully by the thickest part of the forearm. With a right-angled bite block, the assistant is enabled to settle the patient's neck nearer the wrist, thus getting easier and more complete extension.

In children with unerupted teeth, the block will stay in place, since the alveolar face is grooved wide enough to hold the gingival margin.

* From the Bronchoscopic Clinic, Jefferson Hospital.

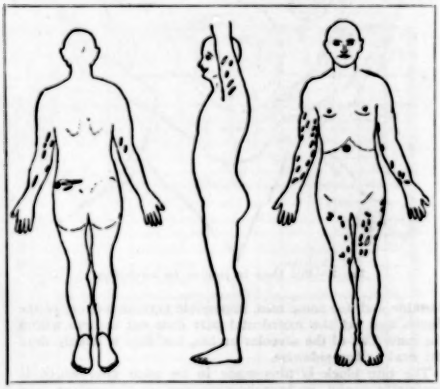
A CASE OF MULTIPLE LIPOMAS OF SYMMETRICAL DISTRIBUTION *

HILBERT F. DAY, M.D., AND WILLIAM A. HINTON, M.D., BOSTON

This case is reported (1) because of the symmetrical placement of lipomas, which showed a marked tendency to follow the paths of certain superficial nerves, and (2) because the distribution of the painful tumors was so characteristic of the typical von Recklinghausen's disease (generalized neurofibromatosis) that the histologic report of multiple lipomas was a surprise.

REPORT OF CASE

A car repairer, aged 30, and single, came to the surgical department of the Boston Dispensary, complaining of painful lumps on his arms, back and legs. His family history had no relation to his present condition. His habits were confined to the moderate use of tobacco and alcohol, except for an occasional excess in the latter. The patient's own history was unimportant, except that he said he had a complete right-sided "neuritis" at the age of 19, lasting two months, and characterized by dull pain on the affected side. This



Distribution of lipomas: Scars are indicated in outline; the existing lipomas, by solid dots.

was not relieved by morphin or phenacetin. His present symptoms began six years ago, while in the Canadian army, when he first developed hematuria and a dropped heart beat, for which he was given a subcutaneous injection in the left arm. One month later, he noticed a slight elevation near the site of the injection. Associated with this elevated area was a tickling sensation. Shortly after, similar lumps appeared on the left hip. As these grew, they became painful. Additional ones came on the left arm, left hip, and, later, on the right arm, leg and hip. He said that during the last six years he had had eight operations, at which varying numbers of these tumors were removed.

The examination was confined to the external surface of the body. The patient was well developed and well nourished, with a slight tendency to obesity. The external surface of the body showed no abnormal pigmentation. Fifty-six scars were noted. The skin was clear except for the scars and for acne marks, which were situated chiefly on the back. In addition to these lesions, six or more tumors, varying in size from approximately 2 mm. to 4 cm., were observed, one on the right side of the ensiform process and another on the left buttock. All the tumors were freely movable, firm but not hard, and lay just beneath the epidermis. The diagram, by Mr. A. L. Caron of the Harvard Medical School, shows that the distribution of the scars and tumors was bilaterally symmetrical and followed very closely the superficial nerves. Those of the legs and back seemed to be limited to the areas supplied by the dorsal divisions of the second and third lumbar nerves, the lateral femoral cutaneous nerve and one of its branches, the anterior femoral cutaneous.

Those of the arms are not quite so definitely from one or two nerves, but are limited to the following definite branches of the brachial plexus (composed of the fifth, sixth, seventh and eighth cervical nerves, and the first thoracic nerve): (*a*) the lateral antibrachial cutaneous, a continuation of the musculocutaneous, from the lateral cord; (*b*) the medial antibracheal cutaneous, from the medial cord, and (*c*) the dorsal antibrachial cutaneous, from the radial, which is a continuation of the posterior cord.

The characteristic response of extreme tenderness was not elicited by pressure over the existing tumors. The scars from the earlier operations were white, while those from the later ones were red. They all showed a distinct tendency to keloid formation.

With local anesthesia, three tumors were removed for histologic examination at two sittings, because it seemed that the pathologic examination should show neurofibroma. The tumors were surrounded by a connective tissue capsule which contained small blood vessels, the endothelial layer of which had not flattened out, in many instances. The trabeculae showed a similar structure. The intervening tissue was composed of fat cells. About four fifths of the cut section was composed of fatty tissue, and the remaining part of trabeculae and capsule. The histologic picture was that of lipoma.

COMMENT

This, therefore, is undoubtedly a case of adiposis dolorosa, which is a name given to the disease of multiple subcutaneous lipomas. According to other minds, these lipomas are frequently symmetrical, and, in a certain group of cases, pain is a prominent symptom. The multiple tumors do not tend to increase rapidly in size, and pain, which often accompanies their appearance, does not long persist.

45 Bay State Road.

* From the Boston Dispensary.

YEAST MENINGITIS: PRELIMINARY REPORT

L. L. SHAPIRO, M.D., AND JOSEPHINE B. NEAL, M.D., NEW YORK

In view of the rarity of yeast meningitis and the fact that it is seldom diagnosed during life, it seems advisable to publish a brief preliminary report of a case now under observation.

A boy, aged 16, developed a severe headache with vomiting after eating a large amount of chocolate and pie, May 15, 1923. He complained also of weakness and dizziness. His family physician (Dr. Shapiro) was consulted, May 19, and suitable treatment was given, but the headache and vomiting persisted. A few days later, May 23, the patient was sent to a sanatorium, where he was under careful observation. Various diagnoses were considered, such as a subacute attack of meningitis, either tuberculous or meningococcic in origin, encephalitis, and brain tumor, the last being suggested on account of the marked papilledema. During this period the temperature was normal most of the time. The mental condition was clear except for a period of delirium which lasted only a few hours. The blood count showed a moderate leukocytosis, with a slight increase in the percentage of polymorphonuclears. Although the patient complained of a slight tenderness at the back of the neck, there was at no time a well defined stiffness. A moderate Kernig sign developed. The patient complained in a rather indefinite way of some slight disturbance of vision.

This describes the condition up to May 29. On this date, a lumbar puncture was made and the fluid found to be under very high tension. Only about 15 c.c. of fluid was removed at the first puncture. Daily lumbar punctures have been made since then, and larger amounts removed. Examination of these fluids by smear and culture has shown the constant presence of a pathogenic yeast usually classified as *Torula*.

At present (June 5) the patient is showing a slight clinical improvement, and the number of yeast cells is apparently decreasing.

A full report of the case with a detailed study of the yeast will be published later.

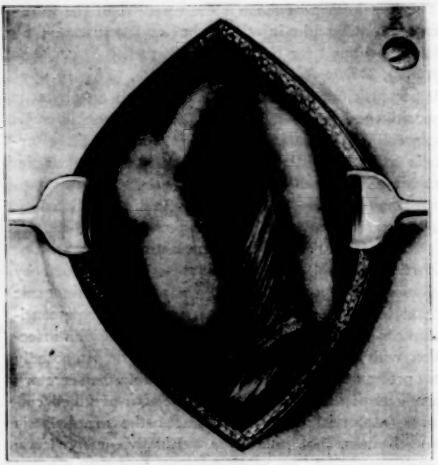
955 Park Avenue.

ANOMALY OF THE APPENDIX

L. S. WILLOUR, M.D., MCALESTER, OKLA.

Attachment of the tip of the appendix to the bladder with rupture into this organ has been reported by Judd, but I am unable to find any case, noted at operation, in which the appendix tip was attached to the intestine and communicating with its lumen.

Careful search of the literature reveals three cases found at necropsy: one by Thoyer,[1] in which the cause of death was cancer of the rectum; one by McDonald,[2] in which the cause of death is not given, and one by Pohlman,[3] in which the cause of death was pulmonary tuberculosis.



Appendix with tip attached to ileum, and opening into it.

REPORT OF CASE

R. H., a farmer, aged 28, whose history as to previous disease was negative, had a typical attack of acute appendicitis in December, 1922, as reported by his family physician, at which time operation was advised. Two weeks before I saw him he had an attack of pain in the right inguinal region, of much milder character than that of the preceding attack. The present attack started forty-eight hours before I saw him, and the attending physician reported that with this attack there had been fever and vomiting.

Examination of sclera, mouth, throat and chest was negative. The abdomen was flat, with a point of tenderness over McBurney's point. There was considerable spasm of the right rectus muscle when palpation in the region of the appendix was attempted. The remainder of the physical examination was negative. The temperature was 99.4 F.; pulse, 88; leukocytes, 8,500; polymorphonuclears, 85 per cent.

Operation was performed at once, Jan. 19, 1923. Exposure of the cecum showed many fine adhesions. The appendix was deep red, with the base normally attached and the tip attached to the ileum about 5 inches from the ileocecal junction. This was first thought to be an inflammatory adhesion; but as it could not be detached by ordinary means, it was found that the contents of the appendix could be milked into the ileum.

The appendix was removed, the hole in the ileum repaired, and the stump of the appendix treated in the usual manner.

It is my opinion that during the first attack the tip of the appendix became attached to the bowel and ruptured into it; but, as drainage was incomplete, there was return of the symptoms; however, the condition may have been congenital.

The accompanying illustration shows the condition as found at operation.

Cambron Building.

1. Thoyer: Bull. Soc. anat. de Paris **7**: 205-206, 1893.
2. McDonald: Proc. Med.-Chir. Soc. Montreal, 1885, pp. 6, 7.
3. Pohlman: J. A. M. A. **50**: 961, 1908.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

SULPHARSPHENAMINE (see THE JOURNAL, March 31, 1923, p. 919).

Sulpharsphenamine-Billon.—A brand of sulpharsphenamine-N. N. R.

Manufactured by Powers-Weightman-Rosengarten Co., Philadelphia, under U. S. Patent 1034993 (April 30, 1912; expires 1929) by license of the Chemical Foundation, Inc.

Sulpharsphenamine-Billon, 0.1 Gm. Ampules.
Sulpharsphenamine-Billon, 0.2 Gm. Ampules.
Sulpharsphenamine-Billon, 0.3 Gm. Ampules.
Sulpharsphenamine-Billon, 0.4 Gm. Ampules.
Sulpharsphenamine-Billon, 0.5 Gm. Ampules.
Sulpharsphenamine-Billon, 0.6 Gm. Ampules.

RADIUM EMANATION (Radium Emanation Corporation).—The emanation, mechanically removed from a solution of a radium salt, in admixture with inert gases. It is supplied in sealed glass capillary tubes; each tube is accompanied by a statement of the amount of radium emanation in terms of millicurie contained in it at the time of sale.

Actions and Uses.—The radiation from radium emanation as a therapeutic agent is analogous in all respects to that from radium and its salts except that the activity decreases rapidly. (See Radium and Radium Salts, New and Nonofficial Remedies, 1923, p. 255.)

Dosage.—See Radium and Radium Salts, New and Nonofficial Remedies, 1923, p. 255. Therapeutically the penetrating radiation from one millicurie of radium emanation is of the same nature and intensity as that from one milligram of radium, but the radiation available from a tube of radium emanation is greater than that from a tube containing the same number of milligrams of radium. The intensity of radiation from an initial millicurie does, however, not remain practically constant as in the case of radium because of the rapid decay of the emanation (about three-fourths per cent. per hour).

Manufactured by the Radium Emanation Corporation, New York. No U. S. patent or trademark.

Radium Emanation (Radium Emanation Corporation) is obtained by removing the radium emanation produced in a solution of a radium salt. The emanation is removed from the solution by a system of mercury pumps together with other gases formed by the decomposition. The extraneous gases are for the most part removed by chemical means. The residual gas with the emanation is forced into the desired container.

To determine the emanation content of a sealed container it is compared after equilibrium is attained by determination of the gamma ray activity with a tube of radium salt standardized by the U. S. Bureau of Standards. The tubes are shipped in lead lined containers.

Radium.—The total supply of radium in the United States, it is reported, is about 100 grams, most of which is owned by physicians. Rich deposits of radium having recently been found in the African Congo, the Radium Company of Colorado has closed its mines and is now an agent for the Congo supply, which, although richer than the Colorado supply, yields only 1 part of radium to 5,000,000 parts of ore.

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SATURDAY, JULY 21, 1923

A PROPOSED CLASSIFICATION OF HYPERSENSITIVENESS

Classifications, like theories, are, only too often, clay idols which fetter the imagination of men. During their reign, however, they form a target to focus effort, and their very downfall marks the improved aim they have engendered; so we must welcome any attempt to organize the protean and perplexing phenomena variously known as allergy, anaphylaxis, idiosyncrasy and hypersensitiveness. Doerr [1] and Coca and Cooke [2] have been active in this work, and the classification evolved by the latter may be of interest.

Hypersensitiveness is chosen as the generic term and defined as "a state of susceptibility in man and animal that is mediated by a special mechanism that occurs naturally or is developed artificially, and which may be specifically influenced (toward increased or diminished sensitiveness) by the suitable administration of the exciting agent." The "special mechanism," e. g., the various immune bodies, may be demonstrated and artificially induced in anaphylaxis and infection; but in certain forms of hypersensitiveness, as hay-fever, the mechanism is not yet known, and in such cases its presence is inferred by two criteria. The presence of a reaction in but few individuals of a species or in one species of mammalia while absent in all others indicates in these individuals or in this species a special mechanism for its production not present in the others, and which is the basis of the hypersensitiveness. The other factor in the definition, that administering the exciting agent may change the susceptibility, includes the usual sensitizations and desensitizations.

A hypersensitiveness of a whole species which is present in varying degrees in all its members is considered normal, in contradistinction to that present only in certain individuals and therefore abnormal. Thus, serum disease in man (the urticaria, pruritus, joint pains and fever occurring from five to fifteen days after the administration of serum, not the immediate true anaphylaxis or the dyspnea in susceptible persons) appears with various intensities in 90 per cent. of all persons, but is said to be unknown in animals, and similar relations hold for dermatitis venenata (caused by poison ivy and sumac); whereas hay-fever and asthma are present in fewer than one in ten persons. Serum disease and dermatitis venenata are therefore the results of what is called normal hypersensitiveness.

Three kinds of abnormal hypersensitiveness are distinguished: anaphylaxis, "the hypersensitiveness of infection" and "atopy," each of which has its own special mechanism and distinguishing earmarks. The "hypersensitiveness of infection" includes the cutaneous and other reactions which may be induced in infected persons by injecting preparations of the infecting agent. The best known of these is the response of the tuberculous to tuberculin injections; but similar susceptibility has been found for *B. typhosus, B. mallei, Spirochaeta pallida, Trichophyton* and other agents. This form of hypersensitiveness is distinguished from anaphylactic sensitiveness by a number of points. The latter is expressed by definite symptoms and lesions characteristic in each species, and differing in the guinea-pig, rabbit and dog, while the former is expressed in symptoms and lesions (both cutaneous and general) which are not characteristic in each species and which are different from the anaphylactic reaction in any species. Further, anaphylactic sensitiveness is developed by administration of proteins which are precipitinogenic (and therefore true antigens), while the hypersensitiveness of infection develops in the course of an infection with micro-organisms in response to supposedly nonprecipitinogenic substances—probably the secretory products of bacterial growth. Injection of killed cultures (bacterial proteins) induces the anaphylactic sensitiveness, not this type. Finally, anaphylactic sensitiveness can be passively transferred to normal animals with the serum of sensitized ones, whereas the hypersensitiveness of infection apparently cannot be so transferred. In not being inherited, and in being removable by injection of the active substance, these two forms are similar.

Atopy or atopic (out of place or rare) hypersensitiveness is coined to cover inherited idiosyncrasies, as asthma, hay-fever, and drug idiosyncrasy. The fact that this sensitiveness is inherited (subject to a dominant gen) in itself distinguishes it from both of the other forms of abnormal hypersensitiveness. Furthermore, it is expressed in symptoms and lesions, the important ones of which are different from the anaphylactic reaction in the guinea-pig, rabbit or dog. Atopy may be exhibited against either precipitinogenic or nonprecipitinogenic substances, is not passively transferable with the blood of a sensitive individual, and may be lessened but not removed by injection of the active substance, which criteria help further to distinguish this hypersensitiveness.

1. Doerr, in Weichardt's Ergebnisse der Hygiene 5:73, 1922.
2. Coca, in Tice's Practice of Medicine, W. F. Prior Company 1: 90, 1920. Coca and Cooke: J. Immunol. 8:163, 1923.

As the authors realize, these groups are by no means final, and further investigation is certain to show some overlapping, as, in fact, it is already doing. Until, however, the actual mechanism of each kind of sensibility is known no classification can be biologically certain, and the one proposed has at least the merit of pointing out obvious differences and distinctions. Anaphylaxis is limited to a definite condition not occurring naturally so far as known, and very rare in the human species; and it is to be hoped that this will help the practitioner to realize—to paraphrase Hamlet—that there are more things besides anaphylaxis in hypersensitiveness that have not been accounted for in his philosophy.

PHYSIOLOGIC CLINKERS

One reason why the professional study of science in general, and medicine in particular, has failed to win public applause and gather popular support in larger measure than it does at present lies in the distortions and misrepresentations to which this department of learning has all too often been subjected. The quack and the impostor make no sincere pretense of adhering strictly to the known in heralding their claims; the pseudoscientist usually dresses his propaganda in a variety of raiment that may include ignorance, erroneous belief and mere conjecture. All too often, even the reputed scientist is found supporting a doctrine that is dangerously near uncertainty of demonstration, or rests at best on the basis of inadequate investigation. Much of the scientific teaching of today is permeated with a cock-sureness that is unwarranted by the meager facts of experience or experiment.

When the out-and-out fraud is perpetrated we do not hesitate to assail the perpetrator. The Propaganda for Reform supported by the American Medical Association is frank and unrelenting in its attacks on such persons as nostrum venders and their ilk. Even the public can usually appreciate the propriety and benefit of these efforts to eradicate a harmful evil. Criticisms of the food faker, the health faddist and similar types of pseudoscientists usually find a less sympathetic hearing, possibly because the man in the street is unable to distinguish between the language of these uncritical if not unscrupulous propagandists and that of the honest devotee of science. As for the unweighed or unguarded statements of the latter, they are often received as the dictum of "authority." Who among us can always discriminate between the offhand remark and the well reasoned belief of an "expert" in science?

The time has come when those interested in the dignity of science should protest, wherever it seems desirable, against any semblance of finality or any assumption of authority in unwarranted statements of those who trade on scientific investigations. When we hear the enthusiastic advertiser say that "fish is a brain food" or that his suction device will "grow hair" on a bald head or that electric belts will prevent an attack of rheumatism, let us soundly berate him. Let us not overlook the more subtle forms of questionable information such as recently appeared in the alleged remarks of a president of one of the prosperous medical cults. Attacking what he termed "food drunkards," he was quoted widely as saying:

> The American diet of bread and meat and potatoes, topped off with sweets, is the cause of more spinal curvature and joint deformation than any other one thing. If congress would place a tax of a dollar a pound on sugar, the national health would show an immediate improvement. As for bread and meat and potatoes, they are too heavy and concentrated, and form clinkers in the system.

It is, of course, true that bread and meat are "concentrated foods" when compared with fruits and vegetables in general. However, few foods in the entire dietary of man show as high a coefficient of digestibility as do the items which the "drugless" food "expert" has so glibly condemned. What, then, is meant by "clinkers in the system" in the case of these foods? Surely not indigestible residues. Studies in nutrition belie such an answer. Or are there perhaps "clinkers" in the metabolism—some half oxidized fragment of an amino-acid or glucose? Scientific reasoning fails here when the unmeaning analogy of the cellar furnace is used to conjure with before an audience that understands the firebox of iron and clay only. Bread, the backbone of our national dietary, produces physiologic clinkers? Bosh! And, yet, a little physiologic knowledge is a dangerous thing—in the hands of a clinker expert.

RESPIRATORY CHANGES AT HIGH ALTITUDES

The study of the physiology of altitude has unquestionably received a great impetus from progress in ballooning and aviation. Only a few years ago it was primarily the mountain climber and the resident of mountainous regions who awakened an interest in the changes of bodily functions associated with lowered barometric pressure. It gradually became apparent that man's ability to grapple with altitude in something more than an amateurish fashion depended on learning with precision what his handicaps are in the upper reaches of the atmosphere. The menace of mountain sickness long remained a puzzle. When its analogue in the form of mal des aviateurs—aviator's sickness—came into notice, the need of physiologic knowledge was emphasized more than ever. The conquest of the highest peak of the Himalayas or an ascent of more than five miles upward in an aeroplane are to be rated as physiologic achievements quite as much as physical successes. What are some of the conditions that must be encountered?

Foremost has long been recognized the relative shortage of oxygen experienced with the falling barometric pressure. In response to this, changes occur in the oxygen-carrying capacity of the blood. The number of red corpuscles in the circulating medium is promptly

increased as an obvious adaptive response. There are altered behaviors in other aspects of the circulation. Respiration is also modified under conditions of lowered oxygen pressure. With respect to the gaseous metabolism at high altitudes, opinions have not been entirely concordant. It is highly important to establish the truth about the respiratory exchange, however, because it will tell us something of the conditions attending physical activity in rarefied atmospheres. Professor Schneider [1] of the School of Aviation Medicine at Mitchell Field, Long Island, has recently reported his numerous observations on men both at rest and at work during a period of acclimatization on Pike's Peak, at an altitude of 14,110 feet. These studies show that physical exertion caused a higher rate of metabolism than was normal for low altitudes, during the first days of residence at the high altitude. There were individual differences in the amount of increase and in the time that the heightened metabolism persisted. The results thus indicate that, during the first part of a sojourn at a high altitude, physical exertion may be more costly to the body than at a low altitude or than it will be later on at the high altitude. However, as acclimatization occurs, the gaseous metabolism, which is an expression of the exchange of energy, usually returns to, or almost to, the low altitude level. In some individuals this return is made more slowly than in others. Usually from one to three days suffices at the height of Pike's Peak. The conclusion that there is no profound change in the gaseous metabolism at the high altitude is supported by the fact that the respiratory quotient is not definitely altered by residence there.

It is now generally admitted that a foremost factor in the causation of mountain sickness is the lack of oxygen. This has not satisfied all investigators, however, as an adequate explanation of the entire phenomenon. Physiologists of note have asserted that lack of acid or an undue proportion of alkalis in the blood is a contributive, if not a dominant, factor. Barcroft,[2] for example, believes that the vomiting center is stimulated by the lack of acid in the blood when mountain sickness is induced by the action of want of oxygen on the brain. Haldane and his collaborators in England, and Sundstroem, Henderson and Haggard in this country, find in alkalosis a probable explanation of some of the symptoms. For these students of the subject, acclimatization would presumably consist in the excretion of the excess of alkali from the blood. Schneider's experience, on the other hand, fortified by many analyses of the alveolar air of his subjects on Pike's Peak, leads to the conclusion that some men are more tolerant of low oxygen than are others, and that mountain sickness is more closely associated with oxygen want than with an alkalosis of the blood. Indeed, he doubts whether the latter is an important causative factor. Mountain sickness was found to be most severe in the physically unfit, and to be associated with a low alveolar oxygen tension. Hence, those who aspire to reach great heights must truly cultivate fitness of body.

1. Schneider, E. C.: The Respiration Exchange and Alveolar Air Changes in Man at High Altitudes, Am. J. Physiol. 63: 107 (June) 1923.
2. Barcroft, J.: Respiratory Function of the Blood, Cambridge, 1914.

Current Comment

CONNECTICUT SEES THE LIGHT

Governor Templeton of Connecticut has rendered a praiseworthy service recently in vetoing two bills relating to the treatment of disease and injury. One bill undertook to validate some twenty licenses to practice medicine, which had been found to be void because based on unlawful certifications by the Connecticut Eclectic Medical Examining Board. The other created a commission to pass on the moral and educational qualifications of persons applying for licenses, and to report to the general assembly in 1925 on the status of medical legislation, with suggestions for such changes or codification as the commission might deem proper. The bill to validate the void licenses was briefly disposed of in the governor's enlightened veto message as follows:

> It is admitted that the eclectic board approved these names in violation of law. . . . True, the particular eclectic board which took this action is worthy of censure, but that does not justify receiving as doctors persons who are not qualified. The public should be considered first in the matter. These persons knew that they were taking chances when they went to an inferior school and received an easy diploma. At all events, I feel bound to protect the public, however much I may regret inconveniencing these individuals.

The bill creating a commission to act as a preliminary examining board and to report on the legislative needs of the state was meritorious in the ends it sought to accomplish, but defective in the method through which it sought to attain them; for a fatal error was made in defining the personnel of the commission, which was to be made up of a physician, a homeopathic physician, an eclectic physician, an osteopath, a chiropractor, a naturopath and five laymen. Pointing out the incongruity between the qualifications of this commission and the functions it was to perform, Governor Templeton said:

> To this commission the bill gives power not only to recommend new law, but actual and sweeping power over the admission of applicants. . . . These are very large powers to place in the hands of five laymen, however competent, and of six professional men of whom three are in theory opposed to the use of medicine. . . . This bill might force those schools (which insist on a high standard of education) to accept lower standards or different standards, and deprive the sick of even that insufficient protection which the Connecticut law now affords. And the public ought to be considered in the matter.

The physicians of Connecticut compare favorably with those found elsewhere. Yet it has long been recognized that, because of inadequate protective laws, Connecticut has become one of the sloughs into which float the spawn of the most notorious proprietary medical colleges in the country and other medical and pseudomedical riffraff. It is to be regretted, therefore, that

the details of the bill to improve the situation were not better thought out; nevertheless the governor is to be commended for his insight and courage in exposing the flaw in it and in forestalling its operation. Doubtless he can still attain the main object of the bill by appointing on his own initiative a commission of representative citizens to report such changes in the laws of the state as may be deemed necessary, and with its advice the governor can recommend to the next general assembly the enactment of whatever legislation may be necessary to safeguard the health of the people against incompetence and quackery. Let us hope he will do so.

CARBONATED WATERS

A press sheet just received, issued by the Publicity Bureau of the American Bottlers of Carbonated Beverages, is a plea for the giving of soft drinks to young children and an attempt to combat "a prejudice held by some persons" against this product:

> Carbon dioxid, used in the manufacture of carbonated beverages, long has been recognized as an aid to digestion and as having valuable germicidal qualities. A fact not so well known is that mother's milk also contains 10 per cent. carbonic gas by volume—proof that Nature realizes the health-giving qualities of CO_2.

Reasoning from the fact that mother's milk contains sugar, water and carbon dioxid, the inspired publicity man continues:

> Thus it is seen that three—and the main three—component parts of a carbonated beverage are in accordance with Nature's own formula for infant food. To these the manufacturer of carbonated beverages adds a fruit flavor with its vitamines and cell-building elements.

This paragraph and the one that follows are noteworthy not only for their absolute disregard of proved fact, but for their dangerous implied recommendations:

> A carbonated beverage is a food. It is recognized and regulated as such by law. An average bottle gives more food value than a slice of meat or a slice of bread—its energy immediately available with no tax on the digestion.

How preposterous that it should be necessary to advertise such a staple as ordinary soda water, not on its merit as a sweet, cool drink but as a stimulating, nourishing food substance! Is there no limit to the extent to which the public is to be deluded, misguided and exploited by uncontrolled and selfish commercial propaganda?

LIGHT THERAPY IN TETANY

Good results following exposure to light in the treatment of rickets have been duplicated by similar treatment in active infantile tetany. In 1920, Huldschinsky [1] treated six children suffering with tetany by means of ultraviolet rays, and reported that the symptoms disappeared in from four days to four weeks. Experiments performed by Howland and his associates in the department of pediatrics at the Johns Hopkins University have shown that the calcium concentration of the serum of children with rickets can be raised to the normal level by exposing the children to rays from the mercury vapor quartz lamp. It has also been shown that in cases of active infantile tetany the calcium concentration of the serum is uniformly low. Recently, Casparis and Kramer [2] of the same department exposed five children suffering with tetany to the rays from the mercury vapor quartz lamp. Clinical manifestations of tetany were present in each case, and three of the patients had had convulsions before admission to the hospital. They report briefly that the clinical manifestations disappeared in from three to seven days following exposure to the rays, and that the calcium concentration of the serum increased approximately to normal. As they point out, similar results may be obtained in tetany by the administration of large doses of calcium chlorid. However, such medication does not increase the concentration of inorganic phosphorus in the serum, whereas light treatment increases not only the calcium concentration but also that of phosphorus. If these experiences are confirmed, we shall have available a new, simple and effective means of treating tetany. Moreover, the striking systemic effect of these rays offers an explanation for other conditions in which the calcium metabolism seems to require stimulation. They may even indicate to some extent the manner in which exposure to light effects healing of tuberculous lesions.

1. Huldschinsky, K.: Die Beeinflussung der Tetanie durch Ultravioletlicht, Ztschr. f. Kinderh. **28**: 207-214, 1920.

OXYGEN AND METABOLISM

The word oxygen has long been endowed with unique vitalizing significance in its popular appreciation. For the layman, as for the physiologist, the intake of oxygen spells the very breath of life; and not without propriety. Since the days of Priestley and Lavoisier a century ago, the importance of this gaseous constituent of the atmosphere has gained proper recognition in its relation to the processes of life. To the untutored, oxygen is merely a word to conjure with; it represents the essence of some power that stimulates and vivifies man, so that one often hears of the desirability of "getting plenty of pure oxygen" into one's lungs. The implication that some product or some procedure will supply more oxygen is likely to make an appeal to the seeker of health. It is, of course, eminently true that oxygen is a promoter of physiologic well being. The lack of oxygen, as it is found, for example, at high altitudes or in disease conditions in which respiration becomes seriously impaired, may be attended by distressing consequences. Enough oxygen is always required to permit the metabolism to proceed in a normal manner. Given a soundly functioning organism, it is obvious from all human experience that the "sea of oxygen in which we are bathed" suffices to meet the physiologic needs. Nevertheless, there is an impression abroad among many that oxygen is a "stimulant" or "energizer" of such wholesome potency that a large dose is likely to prove a veritable blessing. This popular conception involves a belief that oxygen is the cause of metabolism, whereas modern physiology since the days of Carl Voit has clearly demonstrated that, in reality, the degree or extent of metabolism going on—the transformation of matter—determines the need of oxygen. Sev-

2. Casparis, Horton; and Kramer, Benjamin: The Treatment of Active Infantile Tetany with Radiations from the Mercury Vapor Quartz Lamp, Bull. Johns Hopkins Hosp. **34**: 219 (July) 1923.

eral years ago, Benedict and Higgins [1] of the Nutrition Laboratory of the Carnegie Institution of Washington, at Boston, examined carefully the effect of the inhalation of oxygen on the metabolism of man. They concluded that, as indicated by the gaseous exchange, the breathing of mixtures containing 40, 60 and even 90 per cent. of oxygen does not alter the basal metabolism of normal persons. And now Meyer [2] of the School of Hygiene and Public Health at the Johns Hopkins University has made tests on animals under exposure to pure oxygen at atmospheric pressure without detecting any demonstrable change in the metabolism. It is time to teach the public that there is a limit to the degree to which man can be successfully "oxygenated."

VITAMINS AND EXERCISE

The lack of positive knowledge regarding those more recently recognized dietary essentials described as vitamins is annoying to students of nutrition, who are continually being importuned to explain the physiologic functions of these food factors. Although various pathologic manifestations of a fairly specific sort are now recognized as indications of deficiency of one or another of the vitamins, it by no means follows that the phenomena of shortage of the latter will give an answer to the question of their normal actions in the organism. To assume that they "promote" some ill-defined process—that they stimulate growth or metabolism—is at present largely an excursion into the domain of conjecture. There is as yet no positive evidence that any of the known vitamins excite the secretory glands to action, although it would appear that vitamin B, at least, is concerned with the appetite. Somehow the impression has gone abroad that vitamins are concerned with muscular efficiency in that the ill effects of lack of these dietary essentials are more severe or appear earlier in both animals and human subjects under the strain of muscular exercise than in comparable subjects at rest. The well-known vitamin report of the British Medical Research Committee [3] actually states that "whilst there is as yet practically no experimental evidence on this point there are indications based on human experience that the demand for the three accessory factors is greater when work is being accomplished." Recently, however, Keith and Mitchell [4] of the University of Illinois have compared the condition and the weight changes of exercised and unexercised animals on rations deficient in vitamin A or vitamin B, other conditions being kept as nearly uniform as possible. As regards vitamin B, no clear evidence was obtained that the amount and type of muscular work imposed affected the dietary requirement for this factor. On the other hand, vigorous exercise did hasten the appearance of symptoms of deficiency in vitamin A and hastened the death of young animals receiving insufficient amounts of this vitamin. Keith and Mitchell venture the conclusion that muscular exercise or some condition contingent on it increases the demand for vitamin A, and they believe that the latter is involved in the metabolism incident to increased activity of the voluntary muscles. The fact that exercise may increase the susceptibility to the ill effects of the lack of vitamin A seems demonstrated; but beyond this we cannot follow the Illinois investigators until more cogent evidence of the concern of muscular metabolism with vitamin functions is forthcoming. The prospect of discovering a new "pep" in the category of vitamins is too alluring—to the nostrum promoter—to warrant the acceptance of any uncertain indications in these days of limitless propaganda.

1. Benedict, F. G., and Higgins, H.: Am. J. Physiol. 27:1, 1911.
2. Meyer, A. L.: The Effect on the Metabolism of Breathing Pure Oxygen at a Pressure of One Atmosphere, Am. J. Physiol. 65:148 (June 1) 1923.
3. Special Report 38, Medical Research Committee, National Health Insurance, 1919, p. 51.
4. Keith, M. Helen, and Mitchell, H. H.: The Effect of Exercise on Vitamin Requirements, Am. J. Physiol. 65:128 (June 1) 1923.

Association News

MEETINGS OF THE BOARD OF TRUSTEES

The Board of Trustees of the American Medical Association met at the Palace Hotel, San Francisco, at 4 p. m., Saturday, June 23, and meetings were held daily until after the final adjournment of the House of Delegates.

The following, among other business, was transacted:

Pathologists Protest Against Advertising of Commercial Laboratories in The Journal

A protest from the American Society of Clinical Pathologists in regard to the advertisement of commercial laboratories in THE JOURNAL was presented to the Board at its first meeting. It was voted to postpone action, however, until representatives of the society presenting the protest could be present. The matter was again brought up at the meeting of the Board held in the Civic Center Auditorium at 3 p. m., June 26. A committee consisting of Dr. Philip Hillkowitz, president; Dr. William C. MacCarty, vice president, and Dr. E. A. Victors, a member of the American Society of Clinical Pathologists, was present. The protest, with arguments, was presented to the Board by Dr. MacCarty, and was discussed at length by members of the Board and by Drs. Fishbein and West. Dr. Hillkowitz objected to any kind of advertising of commercial laboratories appearing in THE JOURNAL, while Dr. MacCarty expressed the opinion that advertising of such laboratories would not be objectionable if the fees for work done and the names of consultants were not mentioned. Attention was called to a quarter-page, boldly printed announcement of Dr. Hillkowitz' laboratory in *Colorado Medicine*, as representing what is asked by the clinical pathologists. The chairman of the Board inquired as to whether the members of the committee did their own laboratory work, and stated that he knew from personal observation that some laboratories conducted by clinical pathologists employ lay technicians to do most of the work. Dr. Hillkowitz replied that they supervise all of the work done in their laboratories. After the committee had retired, the Board discussed the subject fully and decided to refer the matter, and that of the advertisement of baby foods, to the Executive Committee of the Board, with the understanding that that committee should continue to act in an advisory capacity to the committee on advertising at headquarters for an indefinite period.

Gorgas Memorial

A communication was received from Dr. Franklin H. Martin relative to the reorganization of the board of trustees of the Gorgas Memorial, and the Board was informed that Dr. Martin desired to present the plans of the reorganization to the House of Delegates. It was moved that Trustee Richardson be requested to secure an opportunity for Dr. Martin to appear before the House of Delegates if possible (J. A. M. A. 81:40 [July 7] 1923).

Veterans' Bureau

The Secretary of the Association called attention to a communication from the U. S. Veterans' Bureau (J. A. M. A. 80:1914 [June 30] 1923), and stated that Dr. H. C. Watts of San Francisco, a representative of that bureau, desired to appear before the Board on the subject, viz.: the official representation of the Veterans' Bureau in the House of Delegates. Dr. Watts appeared before the Board and presented the matter. Incidentally, the question of the bureau's policy in training disabled soldiers in chiropractic was discussed. It was agreed that the representative of the Veterans' Bureau attempt to secure from the director of the bureau a statement in regard to the adopted policy in the education and training of disabled veterans in chiropractic. A report was prepared for presentation to the House to the effect that direct, official representation of the Veterans' Bureau in the House of Delegates would necessitate a change in the Constitution and was not advisable (J. A. M. A. 81:39 [July 7] 1923).

On Thursday, June 28, a telegram was received from the director of the Veterans' Bureau, to be read to the House of Delegates (J. A. M. A. 81:117 [July 14] 1923).

Advertising in Hygeia

President de Schweinitz presented a resolution from the Philadelphia Pediatric Society protesting against the advertisement of infant foods in *Hygeia* (J. A. M. A. 81:36 [July 7] 1923). The subject was fully discussed, after which the Board directed that the Executive Committee determine this question, as well as other questions relating to advertisements in the publications of the Association, acting in an advisory capacity to the Committee on Advertising at headquarters.

Council on Health and Public Instruction

At the meeting of the Board at the Palace Hotel on the afternoon of June 25, Dr. Rankin, of the Council on Health and Public Instruction, appeared before the Board. He stated that, speaking for himself, he was of the opinion that the need for the Council on Health and Public Instruction no longer existed, since its functions on organization, on legislation and on medicolegal affairs have been distributed to other departments; and that hereafter the health activities of the Association would be conducted largely through *Hygeia*, and its proper conduct was, therefore, of vital importance. Dr. Rankin suggested that the responsibility for the publication of *Hygeia* should be placed on the Board of Trustees. After discussion of the matter, the Board approved and adopted resolutions favoring the proposition made by Dr. Rankin (J. A. M. A. 81:40 [July 7] 1923). At a later and final meeting of the Board, the matter was brought up and emphasis was laid on the imperative need of the early organization of the Bureau on Health and Public Instruction at headquarters, as authorized by the House of Delegates. Attention was called to the fact that the establishment of such a bureau at headquarters implied the appointment of an executive secretary of the bureau and an editor of *Hygeia*. The Board directed that the Executive Committee and the General Manager make surveys and investigations necessary to the proper organization of the bureau and the selection of a qualified editor of *Hygeia*.

Special Journal on Diseases of the Ear, Nose and Throat

A petition was received, signed by the majority of the members of the Section on Laryngology, Otology and Rhinology, dated June 27, 1923, requesting the Board to establish a special monthly journal devoted to diseases of the ear, nose and throat.

Final Meeting

The final meeting of the Board was held at the Civic Center Auditorium at 5:30 p. m. Thursday, after the adjournment of the House of Delegates. The meeting was called to order by Dr. Dowling, and Dr. J. H. J. Upham was introduced as the newly elected member. All the members of the Board were present; also the President, Dr. Wilbur; and the Speaker of the House, Dr. Warnshuis. The Board proceeded to the matter of reorganization, which resulted in the election of Dr. Wendell C. Phillips as chairman, Dr. Thomas McDavitt as vice chairman, and Dr. Frank Billings as secretary. The chairman appointed Drs. D. Chester Brown (chairman), J. H. J. Upham and Frank Billings to constitute the Committee on Scientific Exhibit. He also named as the Executive Committee for the ensuing year Drs. A. R. Mitchell, Charles W. Richardson and Frank Billings.

Appreciation of Services of Dr. Sarles

The Board passed a resolution expressing deep appreciation for the splendid service rendered by Dr. Sarles to the Association during his fifteen years of trusteeship, for his universal courtesy, and for his splendid judgment in the discussion and disposal of matters brought before the Board, and expressed the regret of the Board in the termination of this long and pleasant association with him.

The Board unanimously adopted a resolution, to be formulated by the secretary of the Board, indicating appreciation of the splendid work accomplished by Dr. W. E. Musgrave, chairman, and the other members of the Local Committee of Arrangements.

FRANK BILLINGS,
Secretary, Board of Trustees.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Society News.—The following officers were elected, June 23, at the eleventh annual meeting of the Pacific Coast Oto-Ophthalmological Society at Los Angeles: Dr. Frederick A. Kiehle, Portland, Ore., president; Drs. Arthur C. Jones, Boise, Idaho, and Ronald A. Green, Spokane, Wash., vice presidents, and Dr. Clarence Benson Wood, Los Angeles, secretary-treasurer.

Hospital News.—The first wing of the permanent building for Fabiola hospital, Oakland, will be dedicated in October, it was recently announced. It will contain fifty beds, and will cost $250,000. Mrs. H. Spens Black has endowed one of the beds for $10,000.——A bond issue of $5,000,000 has been approved for the Department of Charities of Los Angeles County, three million of which will be spent on the Los Angeles County Hospital.

FLORIDA

Personal.—Dr. A. C. Hamblin, Tampa, has resigned as district health officer for the state board of health to accept the position of city health officer of Tampa.

GEORGIA

Medical Society Reorganized.—The Jefferson County Medical Society was reorganized, June 22. Dr. J. J. Pilcher, Wrens, was elected president, and Dr. W. B. Jordan, Bartow, secretary.

IDAHO

Hospital News.—The Wendell Inn, Wendell, has been taken over by the Benedictine Sisters, and will be remodeled as a hospital and a home for the aged.

ILLINOIS

Smallpox Quarantine Lifted.—The smallpox quarantine which had been in force for two weeks at St. Charles was lifted, June 30. The epidemic caused no deaths.

Health Officers Dismissed.—Twenty-one district health officers of the state were dismissed, June 30, by Dr. Isaac D. Rawlings, director of the department of health, it is reported, on account of a reduction in the appropriation for these officers from $80,000 to $30,000. Seven of the twenty-one, it is said, will be reemployed.

Health Examination Campaign.—At the suggestion of the National Health Council, the state department of public health has initiated a movement for a state-wide campaign to stimulate frequent physical examinations. A half dozen

agencies, including the medical society, Red Cross and tuberculosis association, have been invited to an organization conference at Springfield in July.

Half Holiday for Physicians.—The physicians of Gibson City will close their offices on Thursday afternoons during July, August and September. The vacation schedule is so arranged, however, that not all physicians will be out of the city at the same time.

Physician Committed.—Dr. Alfred Stocker, Rock Island, was held to the grand jury, July 2, it is reported, charged with violation of the Harrison Narcotic Law. In default of the $3,000 bond fixed by the federal commissioner, Dr. Stocker was committed to jail.

"Doctor" Scott Jailed.—A. Scott, alias "Dr." A. Scott, Peoria, a negro, was placed in the county jail, recently, it is reported, on complaint of a patient for whom he prescribed without having a license to practice medicine. "Doctor" Scott, the report states, has been tried and convicted on the same charge on previous occasions.

Society News.—The seventy-fifth semiannual meeting of the Aesculapian Society of the Wabash Valley, composed of physicians of the cities of eastern Illinois and western Indiana, was held in Mattoon, May 31. Following the banquet, Dr. Zachary T. Baum, Paris, spoke on "Reminiscences of the Last Thirty Years in Medical Work."——At the annual meeting of the Lake County Medical Society at Libertyville, June 7, Dr. Morris J. Kaye, Waukegan, was elected president to succeed Dr. Louis B. Jolley, Waukegan, and Dr. Luther J. Osgood, Chicago, was elected secretary.

Measles.—During the first six months to 1923 there were about 30,000 more cases of measles reported to the state department of public health than for the same period last year. There was also an increase in pneumonia of 4,000 cases, while whooping-cough reports increased 2,000, and tuberculosis, 1,000. The increased registration of the latter, as well as slight increases for venereal diseases, is believed to be due to more complete reports rather than to an increased prevalence. Very definite declines marked the reporting of diphtheria, scarlet fever, smallpox and typhoid fever.

Eighth Annual Baby Conference Announced.—The state director of public health announces that plans have been completed for the Eighth Annual State Fair Better Babies Conference, to be held in Springfield, September 15. Applications for entry will be received between July 23 and September 7, all children in the state between 6 and 60 months being eligible for examination. No registration fee or other charge will be made. Complete mental and physical examinations will be given, and each child will be rated on the basis of a standard score card. The maximum capacity of the conference will probably be from 500 to 600.

An Advance in Social Hygiene.—A new state law provides for heavy fines and imprisonment for patrons, owners, lessors, proprietors or other persons directly influencing the operation of houses or quarters for prostitution. The standards of infectivity have been worked out by a committee consisting of Drs. W. A. Evans, Herman N. Bundesen and Louis Schmidt of Chicago. The first draft of the standards was written after visits to important clinics and eminent specialists. They were then sent to a number of physicians, and to state, provincial and large city health officers for criticism. The final draft has been turned over to the state director of public health. The standards of infectivity will be distributed in September.

Chicago

Hospital News.—The Illinois Home for the Aged Deaf, the first of its kind in Illinois, was dedicated, June 17, under the auspices of the Illinois Association of the Deaf.——An outpatient department for diabetes and nephritis has been instituted at St. Bernard's Hospital, with Dr. H. Leonard Bolen in charge. Arrangements have been made for beds for charity cases for treatment of diabetic conditions with insulin.

IOWA

Society Meets in Open.—The Fayette County Medical Society held its session at Donnan, June 29, on the lawn. Among other papers read was that of Dr. Howard Risk, Oelwein, on the early history of medicine in Fayette County. Dr. Jacob M. Schmittle, Waucoma, was elected president of the society, and Dr. John R. Wood, Wadena, vice president.

Personal.—Dr. Rodney Fagan, Des Moines, has been reappointed secretary of the state board of health for a term of five years, beginning July 1.——Dr. Lydia M. O'Harrow, assistant director of the student health department, Iowa University, Iowa City, has resigned to accept a position at Smith College, Northampton, Mass., in the department of physical education and health.——Dr. David N. Loose, Maquoketa, has been elected president of the Jackson County Public Health Association.——Dr. Clare V. Lawton, Kanawha, has been appointed resident physician at Mercy Hospital, Iowa City.

KANSAS

Personal.—Dr. Clive S. McGinnis, Parsons, it is reported, has succeeded Dr. Orton S. Hubbard as superintendent of the state hospital for epileptics.

Neglect of County Inmates Leads to Manslaughter Charges.—An investigation at the Butler County poor farm following the death of two aged inmates led to the filing of charges of manslaughter for the neglect of the county's dependents, it is reported, against two county commissioners, the county health officer, Dr. Fred A. Garvin, and the county physician, Dr. Ralph B. Earp.

LOUISIANA

Society Favors Restraining Marriage.—The house of delegates of the Louisiana State Medical Society went on record at the recent annual meeting as favoring a law that would restrain the insane, feebleminded, epileptic, or persons infected with venereal disease from marrying. A special committee was appointed to draw up a suitable law to that effect and to report back to the house at the 1924 session.

MARYLAND

Society News.—At the annual meeting of the Charles County Medical Society at La Plata, June 20, Dr. Thomas Carlyle Speake, Grayton, was elected president, and Dr. Samuel J. Fort, La Plata, secretary.

Preschool Child Clinic.—The child hygiene bureau of the state department of health will shortly establish a child hygiene clinic at Tilghman's Island, where a public health demonstration in the care of preschool children will be given. The demonstration, involving the physical examination of all children nearing school age whose parents consent to the test, and efforts to correct defects, covers a field almost untouched in Maryland counties, according to Dr. James H. Mason Knox, director of the bureau. Dr. Walter W. Palmer, county health officer, and Dr. J. R. Sudler, the only physician on the island, will cooperate in this work. Tilghman's Island is a typical rural community.

MASSACHUSETTS

Physician's License Revoked.—The Board of Registration in Medicine reports that the license to practice medicine and surgery of Dr. Walter B. Willey, Everett, was revoked, May 2, 1923, after he had been arrested for violation of the Prohibition Act.

Clinical Demonstrations During July.—There will be held during July in the amphitheater of the Peter Bent Brigham Hospital, Boston, a clinical demonstration of diabetic patients with particular reference to the use of insulin. All physicians are invited to these demonstrations, which take place between 10 and 11 a. m.

Personal.—Dr. David L. Edsall, Boston, has resigned from service at the Massachusetts General Hospital and as Jackson Professor of Clinical Medicine at Harvard Medical School, in order to be able to give more time to other school duties.——Dr. Homer Gage, Worcester, has retired after thirty-five years' service as surgeon to the Memorial Hospital.——Dr. Hugh G. Rowell, New Bedford, has been appointed lecturer in physical education and assistant physician in Teachers College, Columbia University College of Physicians and Surgeons, New York. He will begin his new duties in September.

MICHIGAN

Personal.—Dr. J. Earl McIntyre, Lansing, has been appointed a member of the Lansing Board of Health.——Dr. Glen L. Bellis, Manton, has been appointed superintendent of the Muirdale Sanitarium, Milwaukee, it is reported.

Veteran Dines County Physicians.—Dr. Henry A. Bishop, aged 73, for sixteen years postmaster at Millington, assisted by Dr. Wynne C. Garvin, the present postmaster, entertained at dinner, June 14, all the physicians and their wives of Tuscola County.

Physician Arraigned for Prescribing Narcotics.—Dr. A. Lee Smith, Detroit, was recently arraigned before United States Commissioner J. Stanley Hurd, charged with violation of the Harrison Narcotic Law, according to reports. Dr. Smith, it is alleged, prescribed narcotics in attempting to cure patients of the drug habit.

Statistics Sold by Health Department Employee.—An investigation in the near future probably will be made in all departments of the state, it is reported, in order to protect the public from further annoyance and to stop such petty graft as was recently discovered by Dr. Richard M. Olin of the state health department. It appears that tombstone manufacturers bought lists of deaths from a health department clerk, and sent agents or letters or both to relatives of the deceased to interest them in monuments. "Patent medicine" companies purchased from the clerk lists of births, then circularized the mothers to interest them in "baby foods" and medicines. Dr. Olin has turned over to the governor a report of his discovery. The clerk, it is said, earned more selling state records than he received in salary.

Reorganization of the Butterworth Hospital.—Reorganization of the staff of the Butterworth Hospital, Grand Rapids, preparatory to moving into the new building was completed, June 11, at a meeting of the board of trustees. The following appointments were announced: Chief of staff, Dr. Robert J. Hutchinson; vice chief of staff, Dr. George L. McBride; chief of surgery, Dr. Rowland F. Webb; vice chief of surgery, Dr. Ansel B. Smith; chief of medicine, Dr. Burton R. Corbus; vice chief of medicine, Dr. Abel J. Baker; chief of eye, ear, nose and throat, Dr. John R. Rogers; chief of obstetrics, Dr. Harrison S. Collisi; chief of pediatrics, Dr. Frederick J. Larned; chief of outpatient department, Dr. Frederick C. Warnshuis. The attending staff will be divided into five groups: medicine, surgery, obstetrics, pediatrics and eye, ear, nose and throat. It also will be divided into junior and senior groups.

MINNESOTA

County Commissioner May Authorize Hospital Admissions.—A law recently passed in Minnesota authorizes a county commissioner to sign a certificate admitting patients from his district to the University Hospital. The state and county will each pay half of the cost for the patient's care and treatment.

Medicinal Garden to be Transplanted.—The three acre tract on the University Campus which for thirty-one years has been a medicinal garden is near the site selected for the new memorial auditorium. The drug bearing plants which have attracted scientists from afar, and which have been a source of pride to university students, will be transported to another location.

MISSOURI

Personal.—Dr. J. J. Ertz, Marion, has been appointed chief of the Wichita health department to succeed Dr. M. O. Nyberg, now secretary of the state board of health.

NEW JERSEY

Typhoid Fever at Rockaway.—There were during May and June forty cases of typhoid fever at Rockaway, with three deaths.

Governor Appoints Consultants.—Governor Silzer has appointed the following board of physicians to act as advisers in matters pertaining to health, and as consultants with the state medical society: Dr. Arthur L. Smith, New Brunswick, chairman; Drs. Francis R. Haussling, Newark; A. Haines Lippincott, Camden; John J. Broderick, Jersey City, and John C. McCoy, Paterson.

NEW YORK

Chairman Public Health Council Appointed.—Dr. Simon Flexner of the Rockefeller Institute of Medical Research was appointed by Governor Smith, July 13, chairman of the Public Health Council, to succeed the late Dr. Hermann M. Biggs. Dr. Flexner has been a member of the council since its establishment.

Society News.—The Italian Medical Society gave its third annual dinner at Brooklyn, June 9. The society's first meeting was held in 1915, but the meetings were discontinued until 1920, owing to the World War. Dr. Frank D. Jennings, Dr. Charles A. Gordon, Dr. Joseph A. Manzella and Dr. Joseph B. L'Episcopo gave addresses.

New Health Commissioner Appointed.—Dr. Matthias Nicoll, Jr., of Albany, was appointed by the governor, July 12, state commissioner of health, to succeed the late Dr. Herman M. Biggs. Dr. Nicoll has been with the state health department for eight years and has been deputy state health commissioner for the past four years.

Nassau Hospital Staff Reorganized.—Miss Katherine Hurley of South Acworth, N. H., has been appointed superintendent of the Nassau Hospital, Mineola, L. I., and with her appointment the medical and surgical staff of the hospital has been reorganized. The new staff consists of Drs. Benjamin W. Seaman, B. R. Allison, M. D. Lawrence, Arthur C. Martin, Richard Derby, Everett C. Jessup and Henry B. Smith.

Children's Hospital Service Extended.—The Children's Hospital Service, which has been in existence in New York state for several years, has been rapidly extended during the past year. This service, which offers relief to deserving children at special rates, is now available in 125 hospitals and dispensaries in eighty-five different localities throughout New York state. The New York state department of education urges school authorities to familiarize themselves with the service available in their particular localities, so that it may be utilized to give the best attention to school children.

Cornell's Traveling Fellowship.—A traveling fellowship in medicine has been established at the Cornell University Medical College for 1923-1924, amounting to $2,000. It is available for men and women who have graduated from Cornell within ten years or who are graduates of other medical colleges within ten years, and are now attached to the instructing staff of Cornell. Candidates must have completed a hospital internship or have engaged in laboratory training or research for two years after graduation. The fellowship has been awarded to Harold Edwin Himwich, who graduated in 1919.

A Law to Protect Dairymen.—A measure signed by the governor at the close of the recent legislature provides for the examination of glassware used to count bacteria in milk and cream. Officials of the experiment station at Geneva, N. Y., have been designated to make the examination of all pipets to be used in taking samples of milk or cream which pipets must conform to certain set standards. The new law aims to make bacterial counts more reliable. Purchasers of milk and cream, on the basis of bacterial content, are forbidden to use other than standard pipets passed as satisfactory by the experiment station authorities.

Veterans' Memorial Hospital.—Ground was broken, July 4, at Kings Park, Long Island, for the Veterans' Memorial Hospital, for which the state legislature has appropriated $1,500,000, and which will permit the concentration there of all the mentally disabled veterans of the state. The hospital has been designed to set a higher standard in the care and treatment of the insane. The buildings will be as nearly fireproof as possible; none will be more than two stories high; the lighting will be installed so as to avoid eye strain; heating will be done from a central power house. Most of the patients will be housed in cottages, each unit containing twenty-five beds. No dormitory will have more than twenty beds, and there will be a large number of single rooms. Recreation will be afforded in a gymnasium, an athletic field, a drill field for calisthenics and a modern assembly hall.

Physical Tests for School Children.—The state department of education made public, July 6, the results of the fourth annual state physical tests for children above the sixth grade in schools outside of New York City. The ratings were made by testing the ability to run, jump, throw and climb. The state is divided into six districts for the competitions. Comparison of this year's scores with those of past years shows a steady gain, which has been most marked in the case of girls. Reports indicate that more than 300,000 children were reached through these activities. Emblems are awarded to pupils who score 50 or more points in each event. This work has been very effective in interesting children in physical education. The plan should help train children to favor an annual health examination. The scores of each child are kept from year to year.

New York City

Physician Missing.—Dr. Julius Weinstein, it is reported, has been missing from his Brooklyn home since July 4. Dr. Weinstein had a nervous breakdown sixteen months ago.

Smallpox in Brooklyn.—Four cases of smallpox have developed among the negroes of Brooklyn in the Stuyvesant Heights district. The victims have all been sent to hospitals and are said to have a mild type of the disease.

Health Department Moves Diagnosis Station.—The Hospital Diagnosis Station, previously located at 128 Prince Street, was transferred to 505 Pearl Street and affiliated with the Corlears Tuberculosis Clinic, which is under the supervision of Dr. Edward L. Creeden. The station will be open Tuesdays, Thursdays and Saturdays from 2:30 to 4:30 p. m.

Summer Courses at Kings County Hospital.—The Department of Public Welfare announces a course in the treatment of fractures, Aug. 3-Sept. 30, 1923, on Mondays, Wednesdays and Fridays, from 11 a. m. to 12 m. There will also be a course in operative surgery, August 4-September 29. These courses will be under the direction of Dr. Joseph Tenopyr, and each will be limited to ten postgraduate students.

Personal.—Dr. William D. Cutter, Albany, has resigned as secretary of the state board of medical examiners to become dean of the New York Post-Graduate Medical School and Hospital, New York City.——At a meeting of the council of the University of Strasbourg, May 24, the honorary degree of doctor of the University of Strasbourg was conferred on Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, New York.——Dr. Clarence C. Burlingame is the new executive officer of the combined Presbyterian Hospital and the Medical Department of Columbia University, with the title of executive vice president. Dr. Charles H. Young, former superintendent of the Presbyterian Hospital, is now head of the Hospital of the Good Shepherd, Syracuse.

NORTH CAROLINA

Personal.—Dr. Everett A. Lockett, Winston-Salem, was recently appointed county physician.

Increase in Diphtheria Investigated.—Unable to explain the alarming increase in the number of cases of diphtheria in the state despite constant activity by the state department of health to lower the incidence, State Officer Rankin has written to every physician in the state, it is reported, asking cooperation to determine the cause. From 1919 to 1922 the number of cases increased from 3,519 to 8,136. It has been noted during this period that the number of cases steadily increases from August until December, when it starts to decline.

NORTH DAKOTA

Fargo Health Officer Appointed.—Dr. Burton K. Kilbourne, Topeka, Kan., was recently appointed health officer of Fargo. The American Child Health Association, which is conducting a health demonstration at Fargo, will bear the expense of this new office until September 1, when the commission will assume the expense for one year.

OHIO

Child Health Stations.—The Cincinnati health department will soon open six child health stations. A physician and a nurse will be in attendance at each station. Special attention will be given children of preschool age and infants.

Chiropractor Loses Appeal.—The Court of Appeals, Cleveland, June 30, upheld the chief justice in the municipal court in the conviction of Albert J. Schnacke, chiropractor, for practicing without a license, according to reports. Schnacke was the only one of a score of other chiropractors recently convicted in municipal court who appealed his case; the others were fined $25 each, but chose to go to jail.

Health Examination Conference.—Plans for a state-wide campaign to encourage periodic health examinations were made at a conference at Columbus, June 22, at which, among others, representatives from the following organizations were present: the state federation of labor, manufacturers' association, American Legion, Ohio Farm Bureau Federation, state medical association, and Ohio Public Health Association. Dr. John E. Monger, state director of health, was elected chairman of the campaign committee. The campaign, which will be educational, will be conducted under the direction of the state department of health in cooperation with the Ohio Public Health Association and other affiliated bodies.

Personal.—Dr. George M. Guest, Cincinnati, has been appointed a fellow of the Commission for the Relief of Belgium Educational Foundation of New York and will spend a year in research study at the University of Belgium. ——Dr. John D. Boylan, for three and a half years health commissioner of Mahoning County, has resigned to enter private practice about September 1.—Dr. Mifflin B. Brady has been appointed a member of the Cincinnati board of health to fill the unexpired term of the late Dr. George A. Fackler.—— Dr. David J. Wolfstein, professor of psychiatry, University of Cincinnati College of Medicine, has resigned, it is reported. Dr. Wolfstein has been identified with medical education in Cincinnati since 1894.

OKLAHOMA

Tulsa Adopts Health Measures.—On the recommendation of the superintendent of health, the city commission appointed, July 3, an active board of health as follows: Drs. Albert W. Pigford, Arthur V. Emerson, Thomas W. Stallings, Clarence S. Summers, and Irenaeus N. Tucker. The commission also amended the milk ordinance to require that every cow whose milk is sold in the city must have a tuberculin test annually; the collection of milk bottles by junk dealers for resale to persons engaged in selling milk was prohibited.

OREGON

Personal.—Dr. Frederick O. Stricker, state health officer, was elected president of the Pacific Coast Health Officers' Association at the meeting recently held in San Francisco.

PENNSYLVANIA

Campaign for Health Examinations.—The state secretary of health called a meeting, June 21, at Harrisburg, to organize an educational campaign to encourage annual health examinations. Dr. Charles Miner, state secretary of health, introduced, among others, the following speakers: Dr. Edward Martin, Philadelphia, chairman of the Committee on Public Relations of the state medical society; Dr. Elizabeth Bricker, Harrisburg, of the Department of Labor and Industry; Dr. Howard C. Frontz, Huntingdon, president-elect of the state medical society. Dr. Miner was empowered to appoint an executive committee of five to formulate detailed plans and to report to the general committee.

Philadelphia

Club Founds Hospital Bed.—The Poor Richard Club of this city has founded a bed in the American Hospital in Brussels, to be known as "The Poor Richard Club Bed."

Woman's Medical College Appointments.—The following appointments have been made to the teaching staff of the Woman's Medical College of Pennsylvania: Dr. George M. Dorrance, on the staff of the University of Pennsylvania Hospital to the chair of surgery; Dr. Joseph C. Doane, medical director of the Philadelphia General Hospital, to be clinical professor of medicine; Dr. Elizabeth Dixon Wilson, to be director of laboratory hospital work, and Dr. H. Evert Kendig, to the chair of pharmacology and materia medica.

Congestion a Menace to Health.—Migration of Southern negroes to this city in record breaking numbers has produced a serious health menace from overcrowding and inadequate housing, according to a recent survey by a committee representing the Armstrong Association, the Mercy Hospital (both colored institutions), Travelers' Aid Society and the Philadelphia Housing Association. Approximately 10,500 negroes, or about one-third the total number of newcomers in this city in one year, arrived here between July 1, 1922, and June 30 of this year. Families are going into premises already occupied, either as householders in one or two rooms, or as lodgers. A single room in West Philadelphia, which had neither yard nor toilet, was occupied by sixteen persons. Within seven months, medical inspectors have quarantined forty-two different districts and vaccinated residents. Every one of the smallpox cases found in these districts was a negro who had recently arrived from the South. In one house, it is said, occupied by thirty-eight recent arrivals, seven cases were found.

SOUTH CAROLINA

Infant Welfare Campaign.—The state board of health and the county medical society are cooperating in a two months' infant welfare campaign which was recently started in Abbeville County. The campaign will be educational and preventive.

Abrams' Followers to Be Expelled.—The Barnwell County Medical Society adopted resolutions, May 30, it is reported, to expel all members who now or may in the future practice the Abrams methods. Barnwell, it is said, is the pioneer county in the state to disown the Abrams disciples.

SOUTH DAKOTA

Personal.—Governor McMaster has appointed Dr. Alfred Hennings, Kadoka, health officer of Washabaugh County.—— Dr. W. G. Magee, Watertown, has been appointed county

coroner for the unexpired term of H. O. Haroldson, who has moved to Minot, North Dakota.

TEXAS

Hospital News.—The war memorial hospital of the Woodmen of the World, San Antonio, was dedicated, July 4.

State Board Appointed.—Governor Neff recently announced the appointment of a state board of health to be composed of the following members: Drs. Murff Franklin Bledsoe, Port Arthur; Albert Fitzhugh Beverly, Austin; Wm. F. Holland, Santa Anna; Frank Lafayette Paschal, San Antonio; Arthur Carroll Scott, Temple, and Thomas B. Fisher, Dallas.

WASHINGTON

Personal.—Dr. Edward L. Brinson has been appointed health officer of Whatcom County, to succeed Dr. Fred V. Shute, whose term expired July 1.——Dr. John T. Coleman, Chehalis, has been reappointed county health officer by the board of county commissioners.

WISCONSIN

Law Makers Deadlocked on Medical Bills.—By a vote of 62 to 24, the assembly recently killed the Benfry bill which required all who practice medicine to submit proof of adequate preparation, and which conformed with a recent decision of the supreme court. The senate recently killed a bill introduced by chiropractors, it is said, which would allow them to sign health reports and death certificates and to treat contagious diseases. The deadlock between the two houses resulted in no new legislation affecting the medical practice act.

CANADA

Public Health News.—According to a recent bulletin, the health of Ontario province for May, 1923, was about on a par with that of May, 1922, with the exception of a marked decrease in the number of cases of smallpox and an increase in scarlet fever. There was also an increase of 198 cases of measles, the month's total being 2,359.

Hospital Notes.—Plans have been completed for a $600,000 addition to the Hospital General St. Vincent de Paul, Sherbrooke.——An addition will be made to the Lady Grey Hospital, Ottawa, in the near future.——A new $40,000 Catholic hospital will be erected at St. Paul des Metis, Alberta. It will be a one-story frame structure.——Construction work has been started on the $40,000 addition to Moose Jaw General Hospital, Moose Jaw. Plans call for a three-story building of brick construction.——A four-story building will be added to the Salvation Army Hospital at Winnipeg.

Banting's Recognition by Canada a Precedent.—Recognition by the Canadian government of Dr. Frederick G. Banting with an unconditional annuity of $7,500 a year constitutes a precedent for Canada, it is reported, and for many other nations in the way of reward for scientific achievement. The federal government's annuity is in addition, it is said, to the provision recently made by the Ontario legislature, which provided $10,000 a year for a department of research in the University of Toronto, the chair to be known as the Banting-Best Chair of Research. By an understanding with the government, Dr. Banting has been appointed the first incumbent in this position, with a salary of $6,000, thus making in all an assured income of $13,500.

GENERAL

Society News.—At the recent meeting of the American Sanatorium Association, at Santa Barbara, Calif., the following officers were elected: Dr. J. W. Pettit, Ottawa, Ill., president; Dr. F. M. Pottenger, Monrovia, Calif., vice president; Dr. E. S. McSweeney, New York, secretary-treasurer.

Aid for Russian Physicians.—The Nansen Relief Mission has appealed for contributions and equipment to help the physicians of Russia, among whom, it is said, there is a high death rate, due to lack of food, overwork and exposure. Contributions should be sent to Nansen Relief Mission, Aid for Physicians in Russia, Dr. Gregory Stragnell, Treasurer, 1 Madison Avenue, New York.

Embargo on Narcotics to Continue.—The Federal Narcotics Control Board recently announced that the embargo on the importation of narcotic drugs would continue until it was decided what disposition will be made of surplus army and navy supplies, which, it is said, are sufficient to stock up the manufacturers who are asking for permission to import these drugs.

Delegates to International Physiologic Congress Sail.—Among the delegates of the American Society for Experimental Biology at the eleventh international physiologic congress, to be held in Edinburgh, who sailed on the *Mongolia*, July 11, were Dr. Victor C. Myers, New York; Dr. Albert L. Stavely, Washington, D. C., and Drs. Leon Jonas and Arthur B. Light, Philadelphia.

Beer Not Medicinal.—The Assistant Secretary of the Treasury made public supplemental instructions to the Public Health Service, June 29, prohibiting the allowance of beer and malt liquors to liners for medicinal purposes. The order said that under Section 2 of the Act of Nov. 23, 1921 (Willis-Campbell Act) "only spiritous and vinous liquors may be prescribed for medicinal purposes in the United States all forms of beer and malt liquors being thus prohibited by exclusion."

Liquor Withdrawals.—The amount of tax-paid distilled spirits withdrawn in the three years since prohibition became effective has been about 75 per cent. less than the amount withdrawn in the three years immediately preceding prohibition. Records of withdrawals, according to Commissioner Haynes, for the present fiscal year have been (thus far) at a rate of only one third as much as that for the last fiscal year, which was approximately one third that of the previous year, 1921. For the ten months of the present fiscal year, 9,003,204 gallons of alcohol, high wines and cologne spirits were withdrawn, and 1,517,345 of whisky, gin and brandy.

Head of Bureau of Chemistry Appointed.—Announcement of the selection of Charles A. Browne, Ph.D., to head the Bureau of Chemistry, U. S. Department of Agriculture, has been made by Secretary Wallace. Dr. Browne succeeds Dr. Carl L. Alsberg, who resigned two years ago. Dr. Browne is a graduate of Williams College, and received the Ph.D. degree from the University of Göttingen in 1902. He has engaged in agricultural chemistry, but is noted especially for his researches on sugar. Since 1907 he has been in charge of the New York Sugar Trade Laboratory. He is author of a number of books and is associate editor of the *Journal of the American Chemical Society*.

Council of League of Nations Indorses Opium Report.—The Council of the League of Nations, Geneva, Switzerland, July 7, indorsed the report of the recent opium conference and adopted a resolution inviting the League's assembly to concur in realizing its aims. The report will be communicated at once to all state members of the league in order to enable their representatives at the forthcoming assembly to take such action as is necessary to make the recommendations effective. The Chinese delegate voiced the appreciation of his country for the efforts of the United States in this work. Lord Robert Cecil also praised America's efforts, and on his proposal, a unanimous vote of thanks to the United States government for sending a delegation to the opium conference was placed on the minutes.

Life Expectancy Gains.—Figures just made public by the Metropolitan Life Insurance Company for the registration area of the United States during 1921 show that the mortality rate was the lowest and life expectancy the greatest on record. At birth, the expected life span was 58.01 years, an increase of 3½ years over the figure for 1920. The average life span was extended more during 1921 than during the preceding ten years. The male population of the United States showed an increase of 4.11 years in life span; the female population, a gain of 3.99 years. Gains in life expectancy were most pronounced at the younger ages. The more favorable balance among males resulted almost entirely from the more rapid decline of the infant death rate for males. The indications, according to this report, are that the years 1922 and 1923 will exceed the 1921 record.

Provisional Birth and Mortality Figures: 1922.—The Department of Commerce announces that birth rates for 1922 were lower than for 1921 in all of the twenty-five states for which birth registration figures are available. The highest 1922 birth rate (34.4 per thousand) was in the cities of Wyoming; the lowest (16.5) in the rural districts of Connecticut. Death rates for 1922 were slightly higher than for 1921 in nineteen of the twenty-seven states having data. The highest 1922 death rate (21.8 per thousand) was in the cities of Mississippi and the lowest in the rural sections of Montana (7.4). The highest 1922 infant mortality rate (105) was in the cities of South Carolina and the lowest (55) in the rural districts of Nebraska. Infant mortality rates shown for both years for fifty-one cities of 100,000 people or more are lower in nineteen of those cities for 1922 than for 1921; the highest rate (107) is for Trenton; the lowest (50) for Seattle.

Churches Establish Clinics.—St. Marks-in-the-Bouwerie, New York, the church founded by Peter Stuyvesant, and the Plymouth Congregational Church, Seattle, have opened clinics for the treatment of disease. The former organization announced that physicians highly trained in medicine and psychiatry will conduct examinations of patients and offer such help as may be practicable. The plan constitutes, it is said, a complete cooperation between specialists in medicine and clergymen, and was instituted only after many conferences. The Rev. Mr. Crosby said, it is reported, that the plan "is against medical quackery of all sorts and it is against the quackery that sometimes hides under the name of faith healing in various stages of organization and various depths of charlatanism." The pastor of the church in Seattle announces, it is said, that the clinic "has no use for any occult philosophy or primitive supernaturalism or faith cure, but the best scientific knowledge which this generation has to offer. Five reputable physicians of the city, it is said, will conduct the clinic.

Information on Maternal Welfare Wanted.—The Committee on Maternal Welfare of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons desires accurate information on the progress each state is making in maternal welfare in order to formulate a report for the annual meeting in Philadelphia, in September. A preliminary program was published in the *American Journal of Obstetrics and Gynecology*, June, 1923, which may suggest an outline for national work among medical societies, departments of health and commissions of social workers. A brief synopsis of the results accomplished in each state and if possible a contrast of the record of the clinics or regions where patients have had pre-natal care with the statistics of the community in general where no supervision has been afforded prospective mothers are especially desired. These, it is planned, to incorporate in the completed survey to be presented to the association and to be published in the annual transactions later on. Such information will be gladly received by Dr. Henry Schwarz, St. Louis; Dr. George W. Kosmak, New York, or Dr. George Clark Mosher, chairman, Kansas City, Mo.

Fake Medical Schools Flood India with "Doctors."—The editor of the *Indian Medical Record* (June) writes at some length to warn his government and the public against the flood of "medical men" with questionable foreign degrees which has recently inundated Calcutta and other large Indian cities. He emphasizes the fact that many of these "degrees" come from schools not listed in the last educational number of THE JOURNAL, and calls for an explanation of that fact from the representatives of these schools in India. The "schools" questioned by the editor are: "The International Medical College," said to be affiliated with the Lincoln Jefferson University, 65 West Randolph Street, Chicago, Ill.; (2) "The Oriental University of Washington," and (3) "The International University of U. S. A." The editor reprints a letter signed by the principal of "The Oriental University of Washington" in which, as a special concession, a diploma (M.D.) is offered for Rs. 400. References are made to THE JOURNAL'S educational number throughout the editor's letter, which concludes: "There are good universities in U. S. A. whose diplomas are held in high esteem throughout the world, and a list of which will be found in the educational number of THE JOURNAL of 1922. Any so-called university, the name of which does not appear in that list should be looked on with suspicion."

LATIN AMERICA

Personal.—Dr. W. F. Molina has been elected dean of the faculty of sciences, University of Lima; Dr. Manuel V. Villarán has been reelected president.

Argentine Prize Offered for Work on Hygiene.—The Argentine Medical Association has established the biennial Rawson prize of a gold medal and the interest on $5,300, to be awarded for the best unpublished work on hygiene presented in competition by physicians, students or professors residing in Argentina.

FOREIGN

Society News.—The ninety-first annual meeting of the British Medical Association will entertain as the guest of the July 24-27.

Veteran Editor to Be Entertained.—The Council of the British Medical Association will entertain as the guest of the evening at the council dinner, Oct. 24, 1923, Sir Dawson Williams, who has completed twenty-five years as editor of the *British Medical Journal*.

Pasteur Scholarships in Holland.—The organization, "Studiefonds Pasteur," recently formed, has for its purpose the provision of funds for young investigators of Holland who desire to complete their studies at the Pasteur Institute at Paris. Two scholarships are now available.

The Budde Memorial Laboratory in Copenhagen.—Dr. Vilh. Budde, who for many years was editor of the *Ugeskrift for Læger*, on his death bequeathed 250,000 kroner to the University of Copenhagen for an institute of hygiene. By the death of his widow, this sum has recently become available.

New Hospital for China.—The New South Manchurian Railway is erecting a three-story hospital of from six to eight units, which will accommodate about 300 patients. The hospital will be for the use of the Japanese as well as the Chinese people in South Manchuria. It will cost about 4,000,000 yen.

The German Council on Pharmacy and Chemistry.—The Arzneimittelprüfungsstelle has been recently organized as an attempt in Germany to supervise proprietary medicinal articles along the lines of the principles followed by the Council on Pharmacy and Chemistry of the American Medical Association. Our German exchanges state that there is an agitation under way to have veterinary articles included in the investigations of the council.

No Decline in Diphtheria in Swedish Cities.—Official statistics show that during the five-year period, 1890-1894, the city population in Sweden was 925,482, with 13,460 cases of diphtheria, or 29 cases per 10,000 inhabitants. During the period 1910-1914, there were 25,632 cases to a population of 1,444,617, or 35 per 10,000. During the period 1915-1919, the city population had increased to 1,635,666, and the cases of diphtheria and membranous croup to 42,743, or 52 per 10,000.

International Pure Food Laboratory of the League of Nations.—Our Paris exchanges mention the organization of the committee composed of delegates from the nations which signed the international convention relating to analysis of foodstuffs. Professor Bordas, the French delegate, presided. The delegate from Argentina was elected president of the committee. The laboratory is to be in charge of the director and subdirector of the central laboratory of the French ministry of agriculture.

Pensions for Aged Physicians.—The council of Epsom College will, in the near future, award several France pensions of £30 a year to medical men. The candidates must be at least 55 years of age, and their income, independent of any allowance from the college, must not exceed £100 a year. The council will also award one pension of £50 a year, for which there is no age limit. The candidates in this case must however be legally qualified medical men who have retired from professional work and who need the pension.

Pharmacy Board Disciplines Chemists.—The Cape Town Pharmacy Board, Cape Town, South Africa, recently dealt with the case of two chemists charged with having divulged the contents of prescriptions without the consent of the patients for whom they were written. After an exhaustive hearing, the chemists were found guilty of improper and unprofessional conduct. They were only cautioned however, as the board considered they believed the serving of a subpoena carried with it the legal obligation to give up prescriptions to the attorney serving the subpoena.

Medals of Society of Tropical Medicine and Hygiene.—At the annual meeting of the Royal Society of Tropical Medicine and Hygiene, London, England, June 21, the retiring president, Sir James Cantlie, presented a handsome chain and enameled badge to be worn by all future presidents of the society. The medallion, which bears an anopheles mosquito, with a cinchona leaf, is suspended from a gold chain whose links bear the names of past presidents of the society. The Patrick Manson medal was awarded to Surg. Gen. Sir David Bruce, and the Chalmers Memorial Medal to M. Emile Roubaud of the Pasteur Institute of Paris.

Medical Resources of Czechoslovakia.—Dr. K. Secher accompanied a party of forty-three physicians, guests of the government and the watering places, from the Scandinavian countries and Holland on a journey through the watering places of Czechoslovakia during the period from May 16-30. He writes to the *Ugeskrift for Læger* that the medical standards of that country may serve as patterns anywhere in the world. He refers especially to the private clinic of the Czech physicians at Prague and to its roentgen-ray installation,

the radium content of the hot springs at Teplitz-Schoenau, the carbonated springs at Franzenbad and Marienthal, the radium baths of Joachimsthal and the hot sulphur springs of Teplice.

International Competition Offered by the Medical Institute of Valencia.—The prizes of the Instituto Médico Valenciano, Spain, for the next year, open to international competition, constitute diplomas of honorary fellowship. They are awarded to authors of the best works on "Early Diagnosis of Abdominal Lesions"; "Valuation of Clinical Signs which Indicate Urgent Surgical Intervention"; "Diagnosis and Treatment of Suppuration of the Hands"; "Critical Study of the Spanish Method of Surgical Treatment of Strabismus"; "Malaria in Valencia"; "Chemical Industries Possible in Valencia"; also one elective subject: "Any Subject Referring to Medical Science or Its Auxiliaries." The works presented may be written in Latin, German, English, French, Italian or Portuguese. They should be addressed to the Instituto Médico Valenciano, plaza de Wilson, 16, before Dec. 13, 1923, accompanied by a sealed envelope containing the name of the author.

Personal.—Dr. and Senator F. Huertas, Madrid, has been decorated by the government of Greece as commander of the Order of George I.——The seventieth birthday was recently celebrated of Prof. Adolf v. Strümpell, the Leipzig neurologist, whose name is familiar by his various signs and descriptions of polioencephalomyelitis and rhizomelic spondylosis. His textbook on internal medicine, published in 1883, has been translated into a number of foreign languages, among them Japanese and Turkish.——Dr. Euzière, professor of psychiatry, has been made dean of the medical faculty of Montpellier, the oldest university in France. Psychiatrics have also the honor of counting Dr. Jean Lépine, dean of the medical faculty of Lyon, among their numbers.——Prof. Alberto Ascoli, of the University of Modena, delivered the official commemorative address at the unveiling of the bronze bust raised to the honor of Carlo Moreschi at the front of the house where he was born.——Dr. J. Francisco Tello has been awarded the Achucarro prize for his work on neurogenesis. This prize was founded to honor the memory of Achúcarro, and is bestowed for eminent work on histology not only in Spain but in other countries. Although founded so recently, it has already been awarded three times. The recipients before Tello were Del Rio-Hortega in Spain and Marinesco in Roumania.——Dr. Cesar Chicote was appointed the delegate from Madrid to the Pasteur celebration at Strasbourg.——Sir William B. Leishman, London, and Professor and Senator Sanarelli were recently elected foreign corresponding members of the Académie de médecine at Paris. Sanarelli is director of the *Annali d'higiene*. Another member of the editorial staff, Prof. C. Gorini of the Agricultural College at Milan, has received a prize from the Académie des sciences at Paris for his works on physiology, and from the French Académie d'agriculture for his studies on lactic acid fermentation.

Deaths in Other Countries

Dr. **John Penn Milton**, Darvell, England, authority on tuberculosis, aged 51.——Dr. **J. Delpratt Harris**, Exeter, England, May 30, aged 73.——Dr. **Walter d'Este Emery**, Brighton, England, bacteriologist and serologist, June 19, aged 53.——Dr. **Carl J. With**, Copenhagen, formerly dermatologist at the Finsen Light Institute and assistant at the Fredericksberg Hospital, aged 45.——Dr. **Otto Naegeli**, Ermatingen, Switzerland, aged 79. Among his best known works is "Treatment of Neuralgia and Neuroses by Manual Procedures (*Handgriffe*)." These included means to arrest the spasm in whooping cough, and to arrest vomiting by pushing up the hyoid bone.——Dr. **Arturo Urcelay**, Merida, Mexico.——Dr. **Adolf Zeller**, chief surgeon of the Marienspital, Stuttgart, aged 69.——Dr. **Grellety**, consulting physician, Vichy, France.——Dr. **W. Harttung**, Breslau, dermatologist of the Allerheiligenspital, aged 65. He published a number of works on syphilis, gonorrhea and tuberculosis.——Dr. **Daspres**, chief surgeon of the hospital of Toulon.——Dr. **Gellé**, formerly vice president of the Société de biologie, Paris, aged 90.——Dr. **P. Gentit**, Paris, medical inspector general of the reserve corps, aged 78.——Dr. **V. Guillemet**, professor emeritus of gynecology, Nantes, aged 72.——Dr. **G. Siringo-Corvaja**, Naples, professor of chemistry at the Technical Institute, author of numerous scientific works.——Dr. **Carl Rosing-Hansen**, chief physician at the Skive Hospital, Denmark, aged 59.——Dr. **R. P. Rottger**, La Plata, Argentina, member of the legislature, known throughout his district as the *padre de los pobres*.——Dr. **T. Brüninga**, Munich.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 30, 1923.

Memorial to Alfred Russell Wallace

A memorial portrait of Dr. Alfred Russell Wallace, the joint promulgator with Darwin of the doctrine of natural selection, has been unveiled at the Natural History Museum, South Kensington, by Sir Charles Sherrington, president of the Royal Society. The present year is the centenary of Wallace's birth. Standing by the statue of Darwin in the museum, Sir Charles said that the building was a fitting place for the portrait, for to its great collections Wallace had contributed largely from his expeditions in the Malay Archipelago. But he did more for that collection and for all collections of natural history throughout the world by contributing the fertile idea which gave them a new significance. Faced with the almost wasteful luxuriance of nature in the tropics, there arose in him the idea of "the struggle of existence" in relation to the origin of all that astounding manifoldness of feature that the world exhibits—the origin of species. The discovery of two great men, Darwin and Wallace, came at the same moment. This might have proved an embarrassment to one or the other, but it formed a bond of generous association between them, each striving to exalt the merits of the other.

Smallpox Epidemic

The fears, expressed from time to time in previous letters, that the neglect of vaccination in this country would result in an epidemic of smallpox, are at last being realized. Not only are outbreaks occurring in various places in England and Wales, but an epidemic has developed in Gloucester, where there are now 161 cases in the hospital. An unfortunate mistake was made in diagnosing the early cases as varicella, and this was not discovered until the ministry of health sent down an expert to inspect them. Gloucester is the home of the egregious Dr. Hadwen, the leader of the anti-vivisectionists and antivaccinators in this country, whose capacity for rhetoric and membership in the medical profession render his repetition of antivaccination fallacies a public danger. It is not surprising that only 10 per cent. of the babies in Gloucester have been vaccinated in the last three years and a large number of adults are unvaccinated. So far the vaccinated have escaped very lightly. Only one or two adults, who were vaccinated many years ago, and a youth of 18 have contracted the disease. An aerodrome has been converted into a temporary hospital, but the antivaccination propaganda has been so mischievous—Dr. Hadwen still maintaining that the epidemic is one of varicella—that patients have sometimes to be removed there by force, the first occasion in this country in which this has proved necessary. While the health authorities have opened vaccination stations and are making efforts to check the epidemic, Dr. Hadwen has become very active against what he is pleased to call "the vaccination hysteria." In his organ, the *Abolitionist*, he describes Gloucester as "the City of Dreadful Lies," because smallpox is said to be epidemic in it. He describes the people as being dragooned into an isolation hospital, established at a great waste of the ratepayers' money, because they are suffering from heat rashes. It is no wonder that the city councilors are incredulous at the reports of eminent experts sent down by the ministry of health to control the epidemic. Dr. Davison, assistant health officer of Birmingham, a very capable man, has been lent to the city and given administra-

tive control. It seems that about 10 per cent. of the original cases were varicella, and the smallpox was at first mild. So far, no deaths have been reported. In a letter to the press, Dr. Wanklyn, health officer of the London County Council, says that our vulnerability to smallpox is now so great that, because of neglect of vaccination, 80 per cent. of us would probably take the disease. Outbreaks of smallpox are also occurring in the Rhondda Valley, in Nottinghamshire mining towns, at Cardiff.

Canada: Immigration; Medicine in the Courts

Prof. Dr. C. K. Clarke, professor of psychiatry in the University of Toronto, in the course of the Maudsley lecture, which he delivered in London, dealt with the question of immigration into Canada. He made a plea for the introduction of the best Nordic types. He did not want to see the country flooded by people of an inferior type. He said that Canadian public men were greatly influenced by American ideals and were following in the footsteps of Uncle Sam closely in the endeavor to rob Europe of its needy millions, with little attempt at sorting. The intelligent study of emigration, rather than immigration, was the essential thing in Canada today. The United States long ago discovered that Canada, as a whole, had been occupied by sturdy Nordic types, who were efficient and capable, and to the descendants of these they extended a warm welcome, with the result that Canada suffered by the loss of its best. To show the danger of unrestricted immigration, Clarke stated that 5,800 children were referred for examination to a national mental hygiene specialist. These were special cases, and 1,386 of the children were mentally subnormal to such a degree that they were incapable of acquiring an ordinary school education. Of this group, only 25 per cent. were Canadians; 33 per cent. were foreign born, and the remainder were children of immigrants who had recently arrived.

In passing to the relations between law and medicine in Canada, Clarke said that these were most unsatisfactory. Canadian judges were men of the highest type, and the legal profession was generally beyond suspicion. At the same time, the well advised psychiatrist hesitated long before appearing in court to give evidence in criminal cases. He realized that the dice were loaded against him, because the law had not awakened to the fact that mental disease was ordinarily a distinct entity, rather than an abstract something that could be explained by a few metaphysical or psychologic speculations. In murder cases, the McNaughton decision still worked overtime, and, if the law had been responsible for a large number of judicial murders in the case of crimes committed by insane or defective persons, it had not realized the responsibility. Perhaps medicine had not been without blame, as so many untrained and poorly qualified practitioners, without knowledge of psychiatry, had been willing to pose as experts and to air their ignorance before equally ignorant juries. Psychiatrists of the new school must force the issue, and the law must be taught that there are realms it cannot invade with success and do what it sets out to do—administer justice. Already the thin end of the wedge had been driven in, and in one of the Canadian juvenile courts, a psychiatrist advised the judge in all cases in which mental disease or mental defect might be suspected.

The Health of the Worker

At the Industrial Hygiene Section of the Congress of the Royal Institute of Public Health, which has just been held, Sir Thomas Oliver delivered an address on the "Health of the Worker as a National Asset." He pointed out that during the last few decades, the tendency had been in Great Britain toward a lengthening of the average span of human life. The crude death rate for 1921 was 12.1 per thousand as compared with 22.4 for the period from 1841 to 1850. The average age at death had risen, and to this circumstance preventive medicine, with improved social conditions, had materially contributed. Between 1838 and 1854, the expectation of life at birth was, for males, 40 years, and for females, 42 years; for 1921, it was 51 for males, and 55 for females. On the other hand, the life expectation of men at 45 was no better today than it was seventy years ago. If the British race was to improve in physique and add to its longevity, the greatest care should be taken of infant life, since it was in the early years that the foundation was laid on which the future had to be built. The examination of two and a half million men for the army during the war showed that only one out of every three reached the standard of fitness for military service. Physical unfitness was irregularly distributed throughout the country, which showed that it was correlated with occupation. Taking the different groups of men in Yorkshire between the ages of 18 and 25, it was found that 71.9 of the agriculturists were in Grade 1, 68.9 of the miners and 60.9 of the engineers, while in the woolen trade only 36.5, and of tailors, only 33.9 attained that grade. There had been a marked decline in tuberculosis in Great Britain. Sixty years ago its death rate was 3.3 per thousand of population, and in 1910 it was only 1.5.

PARIS

(From Our Regular Correspondent)

June 22, 1923.

Death of Dr. J. P. Langlois

Dr. Jean Paul Langlois, who was agrégé professor of physiology at the Faculté de médecine of Paris, has died, at the age of 62. Langlois was born in Paris, Aug. 2, 1862; he became doctor of medicine in 1887, and doctor of science in 1896. He was appointed agrégé professor of physiology in 1898, and, in 1908, he was made the head of the practical work in physiology. As a pupil and friend of Prof. Charles Richet, he at first worked along the lines in which his teacher had been most active, and furnished interesting contributions on animal heat and the regulatory mechanism of heat in the living organism. But his reputation as a physiologist rests mainly on two series of researches: on respiration and pulmonary circulation, and on the functions of the suprarenal capsules, which he began in collaboration with Abelous, now dean of the faculty of medicine at Toulouse, and which he continued alone for several years. Since 1908, Langlois had devoted himself to the study of the physiology of work and of industrial hygiene (including work in the air, in mines, etc.). For a number of years he was professor of hygiene and industrial organization in the Conservatoire des arts et métiers. When, in 1919, a new course in physiology as applied to physical education was organized at the Faculté de médecine of Paris, Langlois was entrusted with its development and the creation of a laboratory. He had been, since 1911, the director of the *Revue générale des sciences.* He was a member of the Academy of Medicine. One of his last researches, carried out with the assistance of Léon Binet, deals with diseases due to physical causes: accidents due to variations in pressure (mountain sickness, aviator's sickness, caisson sickness, windage from shell explosions); thermic accidents (effects of heat and cold); electrical injuries; radiodermatitis, etc. The results of this research were published in Part 7 of Nouveau traité de médecine, edited by G. H. Roger, F. Widal and P. J. Teissier.

International Bureau of Public Hygiene

The permanent committee of the International Bureau of Public Hygiene recently held its extraordinary session for 1923. Most of the countries (forty in number) adhering to

the international bureau by virtue of their acceptance of the arrangement of Dec. 9, 1907, sent delegates. The delegates brought information on the sanitary condition of their respective countries and on epidemiologic events or new sanitary procedures introduced since the preceding session, especially plague and the eradication of rats; typhus fever and practical modes of disinfection; recurrent fever and its incidence in Africa; epidemic encephalitis, and paludism. The committee also discussed three important subjects: the differences in the mortality from cancer in various countries; prophylaxis against typhoid fever, and prophylaxis of endemic goiter.

The committee decided to submit to the various governments a proposal for the establishment of a uniform method of titrating antidiphtheritic serums; conclusions on the control of the manufacture of arsphenamin and its derivatives; and a recommendation for the adoption of a uniform sanitary clearance certificate for merchant and passenger vessels.

The Decrease of Alcoholism

M. Albert Peyronnet, minister of labor, has been investigating the consumption of alcohol by the laboring classes. He addressed his communications to the heads of labor unions, superintendents of large industrial establishments, and other persons who are in daily touch with a large number of laborers. The complete results of this inquiry will not be published until later, but the last number of the *Bulletin du ministère du travail* contains a summary of the information pertaining to Paris. It appears that alcoholism among the working classes is declining at a substantial rate, that absences from work on account of drunkenness are much less numerous, that discipline is better preserved, and that the workmen of Paris have a higher sense of dignity than ever before.

First Woman to Become Agrégé Professor

The competitive examination of candidates for the vacant agrégé professorships has just been held. For the first time in history, a woman—Mlle. Condat—has been appointed an agrégé professor, being assigned to the medical faculty of the University of Toulouse. This is not the first time that a woman has aspired to such distinction; a few years ago, a woman physician applied for the position of agrégé professor of obstetrics on the medical faculty of the University of Montpellier, but was not elected. It is interesting to note the various stages through which women have passed in the struggle for medical recognition. The first woman to be admitted as a doctor of medicine in France was Miss Elizabeth Garrett Anderson, of English descent, whose doctoral thesis is dated 1865. The first Frenchwoman so honored was Madame Brès, to whom I have referred in previous letters (THE JOURNAL, April 9, 1921, p. 1023, and Jan. 21, 1922, p. 207); she was graduated in 1875. But, for many years, the admission of women to the competitive examination for hospital interns met with tenacious resistance. Mlle. Klumpke was the first to triumph over all opposition. In 1886, she was sixteenth in the competitive test for internships. She became later the wife of Professor Dejerine.

Reelection of Professor Roger

By a vote of 51 out of 52, the assembly of professors of the Faculté de médecine of Paris recently reelected Professor Roger dean of the medical faculty.

Personal

At a recent meeting of the Académie des sciences morales et politiques, Professor Pitres, formerly dean of the medical faculty of the University of Bordeaux, was unanimously chosen correspondent for the section of morals, in place of Professor Riehl of Berlin. Dr. François Henrijean, professor of the University of Liége, received the insignia of doctor *honoris causa*, a title conferred on him by the University of Toulouse.

Pharmacists of Alsace-Lorraine

The *Journal officiel* publishes the text of a new law authorizing pharmacists of Alsace-Lorraine to practice pharmacy throughout French territory, under the same conditions as pharmacists who were granted a diploma by the French government.

Death of Dr. O. Josué

The death of Dr. O. Josué, physician to the hospitals of Paris and vice president of the Société de biologie, has been announced.

The Value of Necropsies

In a previous letter (THE JOURNAL, Sept. 30, 1922, p. 1158) I referred to the unsatisfactory condition of anatomopathologic studies in France, with the sole exception of the Faculté de médecine of Strasbourg. This condition of affairs is due, in part, to the difficulties surrounding necropsies. With a view to remedying this condition, the medical committee of the department of Bouches-du-Rhône has passed the following resolution:

> The medical committee, noting the increasing difficulty of securing bodies for necropsy, and considering the fact that, in addition to a very evident prophylactic purpose, necropsies are indispensable for medical and scientific study, hereby adopts a
>
> *Resolution*. That the administrative commission of the hospitals of Marseilles should use all the means at its command to facilitate the securing of material for necropsies.

Pretended Extraretinal Vision

The daily papers have caused considerable stir of late through their accounts of experiments assuming to demonstrate the possibility of extraretinal vision. In order to inquire into these reports, a committee of ophthalmologists of Bordeaux, with Professor Lagrange as chairman, met recently in the ophthalmologic clinic of the Faculté de médecine of that city, for the purpose of witnessing the experiments carried out by M. Simonin Raymond with a view to demonstrating his claims with respect to the possibility of "paroptic" vision, so called. Raymond presented two girls, aged 12 and 16, respectively, who, he asserted, were able, under certain conditions, merely through cutaneous impression at a distance, more particularly of the skin of the forehead, to see objects, to read, etc., without any aid from the eyes. The younger of the girls was selected as the subject for the first experiments. By digital pressure applied to the eyeballs, M. Simonin Raymond stated that he was able to bring about a peculiar condition attended by closure of the eyelids but which is not an hypnotic state, for, quite contrary to the conditions surrounding hypnosis, the subject preserves, after the experiment is over, a clear recollection of all that has happened during the state of special sensibility. Over the eyelids thus closed, as Raymond maintained, he placed a bandage which was tied over the occiput. With this bandage over the eyelids, the experimental subject was placed directly in front of a chart for testing the acuity of vision. At first, in this fixed position, no letters on the chart could be read; but soon the girl, abandoning her rigid position, began to turn her head to the right and to the left, and, with the head in a lateral position, she was finally able to decipher two letters on the chart. Hereupon the members of the committee contended to M. Raymond that his method of blindfolding was entirely inadequate; that it furnished no guarantee that the subject could not see directly, with the aid of her eyes. As proof of their contention, Dr. Bonnefon, one of the members of the committee, applied to his own eyes the bandage used by the experimenter and showed that, by slight or even imperceptible movements of the face muscles,

it is easy to loosen the blindfold so as to see past it. It was accordingly decided to apply a truly hermetic seal to the eyes of the experimental subject, leaving the forehead exposed, since, according to M. Simonin Raymond, it is through the skin of the forehead that "cutaneous vision" is accomplished. Over each eye of the subject was placed a four-ply black cloth with a good-sized pad of cotton, held in place by adhesive strips. Under these conditions the girls were no longer able to "see without the aid of the eyes." Whenever it was possible for them to read any of the letters, it could be demonstrated beyond question that the blindfold was not functioning properly and that the partial vision was due solely to the inadequate occlusion.

BUDAPEST

(From Our Regular Correspondent)

June 19, 1923.

The Expiration of Immunity Against Rabies

Professor Szekely, director of the Budapest Pasteur Institute, in an address recently before the Royal Medical Society, said that it often happens that a person previously bitten and inoculated is subsequently again bitten by a mad dog. The question then naturally arises whether he should be inoculated de novo against rabies or whether revaccination is superfluous, the first inoculation having afforded immunity against further infection. The same question presents itself also in regard to smallpox. Before giving an answer to this important and at present much discussed practical question, we must first decide how long the immunity artificially produced by inoculation lasts. Does it last for life or does it lapse after a certain time? In the latter case, obviously, we ought to inoculate anew if we desire to obviate an imminent risk. Jenner himself held the opinion that immunity once produced against smallpox infection lasts for life. Therefore he advised inoculation being performed in the first year of life. But experience has taught us that the immunity disappears after a certain time; and a protected person, in the event of a fresh smallpox epidemic, may contract the disease anew, though in a milder form. Decades passed, he said, before science cleared up this question, because our observations were taken only from statistics. Nowadays, when, thanks to Pasteur, we are able to add to our knowledge by experimental observation, similar questions in respect to the various infectious diseases can be more quickly settled. We know, for example, that the immunity afforded by variola lasts about ten years. According to Haffkine, the immunity against plague begins within eight days of inoculation and lasts about as many months. It is important to know the duration of the immunity produced against rabies. The only information on this subject came to us from Paris and from the Budapest Pasteur Institute. Pasteur kept his immune dogs under observation for many years. From time to time he tested their immunity against a lethal dose of the rabies virus. The result was that these immune dogs, when injected intraocularly with rabies virus, did not develop the disease; but the control dogs, similarly infected with the same virus, became mad. Pasteur mentions in one publication that, in a certain dog, immunity lasted at least five years. In 1892, Högyes, then professor of the Budapest Pasteur Institute, published an article dealing with the question of the duration of immunity. He described his observations on eight immune dogs, on which he repeated the test-injections with rabies virus after days, months and several years. These experiments gave the average results that, after the antirabic inoculation, the immunity developed in a very short time (in one case after seven days) and lasted from four to seven years. How long does it last? Before answering this question, he described two cases in detail.

A dog that was inoculated, Jan. 20, 1908, resisted the test infection perfectly, Feb. 19, 1911, so that it was absolutely immune after three years, even against the strongest virus. July 31, 1917, i. e., after nine and a half years, it was again inoculated with rabies virus, but this time it became infected, and died, Aug. 27, 1917, with symptoms of paralytic rabies. A hare, inoculated on the same day with the virus taken from the brain of the dead dog, died after three days' illness, Sept. 27, 1917. The immunity, therefore, still existed after three years, but came to an end after a certain interval between that date and nine and a half years.

Another dog had the antirabic inoculations, Jan. 27, 1908. In 1911, a test was made and the dog was absolutely immune. Oct. 25, 1913, it died, with mild symptoms of rabies. This was proved by an experiment in which a hare, infected with the virus taken from the brain of the dog, died on the fifteenth day with symptoms of rabies. This dog, too, which was immune after thirty-two months, had lost its immunity after five years and four months. Therefore, the supposition is justified that the limit of immunity is between three and five years.

From the results of these two experiments, the lecturer stated that the average duration is between three and five years, say, about four years. Naturally, individual factors have to be considered in this connection, because after from two to three years all the eight dogs examined proved to be immune; he is therefore at liberty to suppose that the average limit of immunity may even exceed four years. Considering now the question whether these facts hold good for human beings, up to the present we have no experimental data on which to rely. In the absence of direct proofs we must reason by analogy.

On account of the close relationship which exists between human and animal (particularly dog) rabies, both in the occurrence of symptoms and in the course, we are justified in supposing that the process of immunity is analogous in men and dogs. Therefore he stated that, in all probability, the immunity against rabies in man also expires after a certain time. We are now in a position to answer this practical question, whether we should inoculate de novo if a person is subsequently bitten by a rabid animal; in the event of a fresh bite by a mad dog, revaccination is advisable in every instance, and is superfluous only when the fresh bite occurs at a very short interval after the previous antirabic inoculation.

VIENNA

(From Our Regular Correspondent)

June 17, 1923.

A Crisis in the Vienna Medical Organization

The profession in this city has within the last few years succeeded in holding its own economically by means of a well established organization called the "Wirtschaftliche Organisation," which comprised nearly 95 per cent. of all physicians and was ably managed. Its chief aim was to obtain all possible advantage for practitioners by negotiating with others on the lines of the trade unions. In fact, it could be regarded as a "medical trade union." The similarity went so far that once a "strike" was proclaimed for a period of four hours. The organization achieved really useful results by enforcing the system of free choice of physician for three large health insurance clubs—the "Krankenkasse" of civil service officers, of state railways, and of municipal officers—that is to say, for the bulk of the former lower middle classes, who would be unable now to pay the private practitioner. But recently a large group of young physicians, house physicians or juniors in hospitals, have resigned from membership in the organization, because the latter had induced the government to forbid private practice by them so long as they were paid

by hospitals. The private practitioner, who has to pay all expenses from his own pocket, should not be handicapped by competition with the hospital physician, who has hardly any expenses and a fixed salary. Other grievances, such as restriction of marriage during tenure of office, were also put forward to justify the resignation from membership. This robs the organization of about 10 per cent. of its members. Dissatisfaction with the methods of the board of managers has been expressed repeatedly from various quarters, and a new election is taking place. The profession must endeavor to unite again all members under an economic shield, because this has been proved to be the only way of safeguarding its interests. Otherwise the tendency for separation by reason of political, national and religious causes is so strong that disruption of the profession is inevitable. This would mean rapid loss of the working arrangements made with the leading parties in the state. They submitted reluctantly to the requirements of the profession because the organization was strong enough to force them to come to terms. If this body disintegrates, they would immediately play one group of physicians against the others and suppress all.

A Syphilis and Tuberculosis Debate in the National Assembly

In the national assembly, the budget of the ministry of health has been recently under consideration, and in the course of discussion some interesting data were brought forward. In order to reduce the housing difficulty, the government plans to induce the larger banking establishments to build flats for at least 25 per cent. of their personnel, as has been done in Jugoslavia with good results. Overcrowding in the cities is serious, and causes an increase of tuberculosis, especially in children; where housing conditions are fairly good, a marked drop in the reported cases is discernible. The general food condition is better than two years ago, and is noticeable at once in the statistics of the large workmen's health insurance societies. Unsatisfactory figures were reported as regards infection with syphilis. A census, during the month Nov. 15, to Dec. 14, 1921, taken in the outpatient departments and by private practitioners in Vienna, disclosed that 13,643 men and 7,197 women were infected and under treatment for the first time; since that time, conditions have become worse. There is, in consequence, a strong tendency in the assembly toward compulsory treatment of all persons found suffering from this disease, and examination of all couples desiring to marry. Legislation toward this end is expected shortly. The diminution of consumption of alcohol is desirable, as in this country we have hardly any means for dealing with chronic alcoholics except in the lunatic asylums. As regards cretinism, the conditions are also far from ideal. In the mountainous districts, no less than 10,000 persons are reported as subject to this and allied conditions; protracted treatment by means of small doses of potassium iodid administered in food with the salt is strongly recommended by the government officers of health. An interesting remark was made by one speaker concerning conditions in the Vienna Pathologic Institute. This old building is absolutely inadequate from a hygienic point of view; it is full of dark passages, corners and chambers, because every now and then more and more room has had to be made for the increasing requirements of study. It is well known that eminent scientists, called to Vienna and offered appointment at the head of the institute, refused to continue work in this building; but no new building was erected. This is due to lack of funds since 1914. Within the last six years, the institute has changed directors no less than three times because all have died suddenly. It is a significant fact that of thirty-three physicians and other men now on the staff of the institute, only three are free from tuberculosis. The remaining thirty are suffering from this disease in a more or less marked degree. The new director, Professor Mareset, is resolved to clear up matters. He will not permit any of the dark, unhygienic nooks and corners to be used for work. He allows only so many men to continue work as can be safely accommodated without mutual danger of infection. This spells, of course, restricted possibilities for research, and loss of scientific efficiency for many eager men.

Infectious Diseases in Austria in 1922

With the exception of epidemic meningitis and trachoma, all infectious diseases have shown a marked drop in 1922 in comparison with the previous year. Thus, in 1922, we had: scarlet fever, 2,658 cases (in 1921, 4,210); diphtheria, 2,807 (3,921); typhoid fever, 2,303 (4,288); dysentery, 1,196 (4,733); epidemic meningitis, 38 (21); puerperal fever, 293 (340); typhus exanthematicus, 23 (81); smallpox, 4 imported (18); not one case of cholera; and trachoma, 320 (219). All cases of exanthems and smallpox could be traced to visitors from abroad, especially from the Balkans, while trachoma is frequent now because part of the former Hungarian country is now under Austrian rule and this disease used to be frequent and little treated.

Legislation Against Industrial Poisoning

By order of the ministry for social administration, with which is included the board of health, a series of separate bills, passed by the national assembly some time ago, have been uniformly put in force already. They deal chiefly with prophylaxis against poisoning in certain industries. These are: the manufacture and use of lead and zinc, printing offices and lithographic industries, enamelers, and all workmen handling substances containing poisonous metals. In every working place concerned, a notice must be posted containing instruction of the risks from neglect of clean linen and of the kind of measures that are required from the workmen: the necessity of change of clothing when leaving the factory, of fat in the food, and of early medical examination when certain symptoms occur. A regular examination of factory hands by physicians is compulsory, as well as perfect ventilation of rooms and the provision of apparatus to remove or condense various gases and dust. A daily wet wash of the floor and walls is stipulated when possible. The working dress must be cleaned at least once a week, and sufficient provisions made for bathing and washing by workers in every factory. The transport of raw materials must be so managed that no dust is produced; the loading of the furnace and other machinery must be done with strict observation of hygienic principles, i. e., prevention of dust. Wherever lead is melted or bronze or lead dyes are used, air space of at least 15 cubic meters and floor space of at least 3 square meters must be provided for each workman; in other instances 12 cubic meters and 2.5 square meters are permissible. In cellars or subterranean localities, such work is not permitted. Spittoons must be provided everywhere, and be filled with liquids or moist materials. A first-aid outfit must be within easy reach in every factory, and the foremen must be instructed in first-aid work. In factories producing much dust or noxious gases, the workmen must be advised to wear respirators. Special attention is paid to prophylaxis in regard to children and women. In printing industries and dye factories, children under 17 years may not be employed at the dangerous parts of the work or where poisonous dust is prevalent; women (over 18 years) must have at least a ten minute rest after each two and one-half hours' work at a machine. Change of work must be provided after one week's occupation at the dye department, or two days without work. No food may be consumed on the working premises. For this purpose, a special well ventilated space must be set apart.

If a person is affected by plumbism or other poisoning arising from his work, due to faulty observation of the rules on the part of the employer, he must be paid his regular wages, as long as he is kept from work, of course subject to exact treatment. But if the fault or neglect is caused by the laborer, he receives only sick pay. Free treatment is always insured by means of the compulsory "Krankenkasse" (sickness insurance) toward the premiums of which the employer contributes one third, the employed two thirds weekly. It is clear that this legislation is a distinct step toward assurance of undisturbed health for the laboring classes, and is the outcome of the present strongly socialistic trend of health authorities. It compares favorably with conditions prevailing in other industrial countries where little or no attention is paid to the well-being of the factory hands, and also with conditions in this country twenty years ago.

The Number of Practitioners in Austria

The total number of persons entitled to practice medicine and surgery in the Austrian Republic is 7,054, distributed over an area of 98,000 square kilometers, with a population of 6,280,000. The relative density varies in different provinces. Thus, in Vienna, there is one physician to each 439 inhabitants, while in Carinthia the ratio is 1:2,433. In Vienna there are 4,191 physicians; in Carinthia, 171. In Lower Austria there are 806 physicians (1:1,808); in Upper Austria, 467 (1:1,839); in the Tyrol, 315 (1:972); in Styria, 785 (1:1,208); in Salzburg, 158 (1:1,356); the remaining physicians are distributed in outlying districts, mostly mountainous or on the new Hungarian frontier. About 90 per cent. of these belong to the two powerful medical organizations, one in Vienna with about 3,900 physicians, and one in Graz with about 2,800 country practitioners.

BERLIN

(From Our Regular Correspondent)

June 16, 1923.

Meeting of the German Pathologic Society

At the nineteenth session of the Deutsche Pathologische Gesellschaft in Göttingen, a few weeks ago, the main topic discussed was the theory of inflammation. According to Professor Lubarsch of Berlin, the notion of inflammation, as viewed from the scientific and practical standpoint, must be retained. It is difficult, in many instances, to distinguish inflammatory processes from other related processes; for example, those of organization or regeneration. When local cellular, and, more particularly, lymphocytic reactions appear solely as a partial manifestation of a general reaction, they do not belong under the head of inflammation. Inflammatory processes are attended by local reactive changes in the vascular system, connective tissues, and parenchyma, and consist of migratory, secretory, absorptive, progressive and regressive processes. The point of attack of the injuries causing the inflammation varies. The nervous system plays no special rôle in the matter of inflammation. The difference in the character of the cells that develop in connection with inflammatory processes is determined, on the one hand, by disturbances of metabolism caused by the injuries, and, on the other, by the degree of immunity of the body. One should not speak of chronic inflammation unless paroxysmal or recurrent inflammatory processes succeed each other. Inflammation may be counted among the defense reactions, but inflammation and defense must not be regarded as identical.

According to Professor Rösle of Basle, the capacity for inflammation is a function of the mesoderm and its derivatives, which in the course of phylogenesis has become more pronounced. Inflammation is closely related to ordinary digestion. In both, we may distinguish between a secretory (extracellular) predigestion and a phagocytic (intracellular) digestion. The mechanism of inflammation, humoral and cellular, is more complex in the more highly developed animal organisms. The highest capacity for inflammation is shown in "allergic reactions," and is manifested sometimes in the form of a general anaphylaxis and sometimes in the form of local "hyperergic" inflammation, examples of the latter type being found in the general tuberculin reaction and in the focal reaction in tuberculosis. The presence of inflammation in connection with normal processes in the connective tissue is revealed most distinctly by the existence of a so-called physiologic inflammation, such as the cellular processes connected with nutrition in the intestinal wall and in the reticulo-endothelial apparatus; it is also to be noted in the retrogression of embryonic organs, and in the resorption of cells whether native or foreign to the body.

Professor Schade, a department head in the physiologic institute in Kiel, stated that physical chemistry had advanced knowledge out of all proportion to microscopic research. The distribution of the colloids, dependent on a definite arrangement of ions, is a prerequisite for the normal functioning of the living cell. The isotonicity due to hydrogen, hydroxyl, sodium, potassium and calcium ions and osmotic isotonicity determine the colloidal state of the protoplasm. In inflammation, the osmotic pressure rises and the hydrogen ion concentration is increased. The connective tissue and the vessel walls are severely injured, and the latter become permeable for albumin. The increase of osmotic pressure leads to edema. The formation of substances that decrease the surface tension plays a rôle in the movements of the leukocytes. The cause of both the physical and the chemical metamorphosis lies in the increased metabolism due to inflammation. If the compensatory mechanism becomes inadequate, this leads to edema, blood stasis, exudation, infiltration with leukocytes, and, finally, to morphologic degeneration of the fixed tissue cells. Physical chemistry is not in opposition to anatomicopathologic research, but supplements it. During the discussion that followed, considerable opposition developed, especially toward Rösle's conception of "physiologic inflammation," Joest of Dresden contending that the line of demarcation between regeneration and inflammation would thus be effaced.

Ghon and Winternitz (Prague) discussed primary tuberculosis in children. In accord with the Viennese researches, they found only 2.48 per cent. extrapulmonary primary lesions. The primary pulmonary foci were, in the main, subpleural; more frequently on the right side, and especially frequent in the right upper lobe. There was no frank election of the apex. The number of so-called obscure cases is reduced by careful examination.

Schmorl of Dresden dealt with the so-called Schneeberg lung cancer, which is an affection endemic among the Schneeberg miners. He emphasized that the tumors were most often genuine carcinomas, and not lymphosarcomas, as formerly asserted. It is possible that precancerous changes associated with anthracosis and chalicosis play a part in their genesis.

E. Kraus reported that in diabetes mellitus he had found diminution in the weight of the hypophysis, together with evidences of degeneration, increase of connective tissue and growth of "fetal cells"; in the pineal gland, absence of nucleoli; in the parathyroid glands, lack of oxyphilous cells, and diminution in the size of the organs; in the pancreas, changes in the islets of Langerhans, as described by Weichselbaum; in the suprarenals and the gonads, atrophy of the specific parenchymal cells. He regards diabetes, in the main, as of pancreatic origin. His findings in the pituitary body met with considerable opposition during the discussion.

Berblinger brought forward a number of his own cases to show that the necropsy findings in cases presenting hypophysial changes and adiposogenital dystrophy did not indicate a sharp division of the pituitary body in man into a gland influencing growth (anterior lobe) and a gland affecting metabolism (pars intermedia).

German Council on Pharmacy and Chemistry

The Deutsche Gesellschaft für innere Medizin sent Professors Penzoldt, Brauer, Heffter, G. Klemperer, Zinn and Holste as representatives to the Gemeinsame Arzneimittelkommission, concerning which I reported in a previous letter. The Deutsche Aerztevereinsbund and the Hauptverband deutscher Ortskrankenkassen were also represented by delegates. The work of the council falls into three categories: 1. New remedies are examined to determine whether they are adapted for general practice, and especially for the use of physicians on the health insurance panel; that is, whether or not they are efficacious, practical and reasonably priced. The remedies are submitted to a suitable pharmacologic institute for chemical and pharmacologic study; after the report of the institute is received, they are sent for clinical tests to a clinic or hospital. 2. Besides the routine examination of new remedies, a systematic reexamination and, if need be, retesting of the articles already accepted will be undertaken, in order to decide what remedies may be retained on the accepted list, and what should be discarded. 3. The results of these tests will be collected and published in book form (*Arzneimittelbuch*). This book will contain: (*a*) all remedies accepted by the commission; (*b*) remedies that, in quality, form, packeting and price, meet the requirements set up by the health insurance societies. List *a* for the use of German practitioners in general, and *b*, for the use of physicians on the health insurance panel, will be published in medical journals. Professional opinions on the remedies will also, in certain instances, be published.

Criminal Statistics of Cripples

Würtz has collected statistics on the causes of criminality among cripples. In December, 1921, the statistics of ninety-three institutions, containing upward of 200 cripples each, gave 352 cripples who were guilty of crimes or misdemeanors. Of these, 193 were war injured and 159 were the victims of peace injuries. All criminal cripples were requested to fill out a questionnaire concerning their lives; all without exception complied. The various excuses assigned for the delinquencies were: lack of will power, disturbances of the will, temporary irresponsibility and inability to work. The lack of employment from 1919-1920 was the cause of many delinquencies. The need of compelling all cripples who are able to work to accept employment has been fully established. Cripples who have not served in the army or navy must be given the same opportunities for employment as are given ex-service men.

The Care of Cripples in Berlin

Details of the new law regulating the care of cripples in the city of Berlin have just been published. Their public care is assigned to the juvenile welfare bureau of the city, with the cooperation of the central health bureau and its local branches. The duties are: the establishment of policies, keeping in touch with the supervising boards, keeping and adjusting accounts with the state, and organization and execution of the budget and statistical plans. The practical application of the law in the various districts is in charge of the local branches of the bureau. They receive the reports of cases and transfer the subjects to the welfare centers having jurisdiction. They inquire thoroughly into the need of assistance, and decide on care and reeducation. The district juvenile welfare centers have in their hands the granting and raising of funds, and also the supervision of ambulant cripples. The authorities must keep lists of cripples, note their movements and send regular reports to the juvenile welfare bureau. An advisory council is established, consisting of a municipal public health officer, three orthopedists, three trained instructors and the chairman of the council for severe war injuries. This advisory council is called on for aid in all medical, pedagogic and scientific problems of fundamental importance. Its advice must be sought in the establishment of regulations, including schedules of fees or charges. It also decides in controversies between the local offices and the welfare centers. The central public health bureau has charge of all medical matters pertaining to the care of cripples. Special financial provisions are made for inmates of child welfare institutions, wards of the state, and the children of war veterans and the war injured.

Vital Statistics of German Cities, January-March, 1923

The decrease in the birth rate in the large cities of Germany since 1921 was still manifest in the first quarter of 1923, during which period only 69,631 living births were registered in the forty-six largest German cities, as compared with 78,049 during the corresponding period of the previous year, or 16.8, as against 19.2 per thousand on the basis of an estimated adult population of 16,625,000. For the first time, the birth rate has fallen below that of the ten largest French cities, which for the year 1922 was 17.5. The decrease in mortality since the war has been more marked in the cities of Germany than of France because heretofore the excess of births over deaths was greater in the German cities. As was also true during the last two quarters of 1922, which were noteworthy for having the lowest death rates ever recorded, the continued fall in the exchange value of the mark exerted no unfavorable effect on the death rate for the first quarter of 1923; on the contrary, the death rate for the first quarter of 1923 (15.2) was lower than during the same period in 1922 (16.4). This decrease is due mainly to the fact that the winter of 1922-1923 was considerably milder than the one that preceded it; the absence of epidemics also played a part. The milder winter reduced especially the mortality from pneumonia and influenza, and other diseases of the respiratory organs. The death rate from tuberculosis, however, increased from 1.82, during the first quarter of 1922, to 2.08 for the first quarter of 1923. Since, in view of the milder winter of 1922-1923 the case mortality of tuberculosis can scarcely have increased, the cause for the increase in the mortality rate from tuberculosis was doubtless due to increased morbidity.

Marriages

CALDWELL B. SUMMERS, Kansas City, Mo., to Miss Gladys Claire McGrath, of Savannah, Ill., June 26.

MARK SNOWDEN NELSON, Canton, Ill., to Miss Frances Amrine of Rushville, June 28, at Chicago.

GUY FOOTE PULLEN, Leonia, N. J., to Miss Ingrid Henrietta Wester of Greenwich, Conn., June 30.

JOHN R. BRAYTON, Hardy, Ky., to Miss Berenice Marie Havens of Kokoma, Ind., June 30.

EARL FRED CAMP, Buffalo, Okla., to Miss Kathleen Stephens of Topeka, Kan., June 28.

JOHN HURTER GORDON to Miss Jennie Evlynne Peterson, both of Detroit, June 19.

ISIDOR CHERNIAC BRILL to Miss Ruth Lowengart, both of Portland, Ore., May 26.

LAWRENCE R. GOWAN to Miss Eleanor Schwerin, both of Minneapolis, in June.

ORR FALLS, Wapello, Iowa, to Miss Evaline Helland of Slater, June 20.

Deaths

Edward Robeson Taylor, San Francisco; Toland Medical College, San Francisco, 1865; died, of senility, July 5, aged 84. He was admitted to the bar in 1872, and became a member of the the board of Freeholders for San Francisco in 1886 and again in 1898 when the present charter was framed. He was dean of the Hastings College of Law 1899-1919; mayor of San Francisco, 1907, and was president and vice president of the Cooper Medical College for thirty years. Dr. Taylor was formerly president of the San Francisco Law Library and the San Francisco Bar Association. He was the author of "Moods and Other Verse," "Selected Poems," "To Arms," and other poems. He was decorated with the Cross of the Legion of Honor, France, in 1920.

Edward A. Fischkin ● Chicago; University of Berlin, Germany, 1894; member of the Chicago Dermatological Society; formerly professor of dermatology and syphilology at the Bennett Medical College and the Chicago College of Medicine and Surgery; on the staffs of the Mount Sinai, St. Elizabeth's and the Norwegian Lutheran Deaconess hospitals; aged 60; died, July 13, of pernicious anemia.

William Henry Doughty, Jr. ● Augusta, Ga.; University of Georgia Medical Department, Augusta, 1878; dean, and at one time professor of surgery at his alma mater; member of the Southern Surgical Association; president of the Georgia State Board of Health; on the staff of the University Hospital; aged 67; died, June 22.

Thomas Wilson Serviss, San Francisco; McGill University Faculty of Medicine, Montreal, Que., Canada, 1881; formerly assistant professor of rhinology and laryngology, University of California Post-Graduate School, San Francisco; aged 67; died, June 28, of cirrhosis of the liver and myocardial insufficiency.

William John Blake, Benwood, W. Va.; University of Maryland School of Medicine, Baltimore, 1909; member of the West Virginia State Medical Association; served as health officer of Benwood for four years; aged 38; died, June 25, at the Ohio Valley General Hospital, Wheeling.

Alexander Sands Rochester, San Jose, Calif.; Jefferson Medical College of Philadelphia, 1906; member of the Chicago Ophthalmological Society; served in the M. C., U. S. Army, in France, during the World War; aged 40; died, June 20, at Savannah, Ga., of septicemia.

Ernest Ludwig Schaefer ● Brooklyn; Long Island College Hospital, Brooklyn, 1912; served in the M. C., U. S. Army, during the World War; on the staff of the Wyckoff Heights Hospital, where he died, July 2, of meningitis, following an operation for mastoiditis, aged 34.

John Grant Burke ● Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1897; member of Pittsburgh Dermatological Society; formerly demonstrator in dermatology at his alma mater; aged 54; died, June 25.

John Henry Jamar, Elkton, Md.; University of Pennsylvania School of Medicine, Philadelphia, 1861; member of the Medical and Chirurgical Faculty of Maryland; Civil War veteran; aged 83; died, July 5, of paralysis.

Henry Peter Fahrney, Frederick, Md.; Jefferson Medical College of Philadelphia, 1895; member of the Medical and Chirurgical Faculty of Maryland; county health officer; aged 53; died suddenly in June, at the City Hospital.

Adolph William Miller, Philadelphia; University of Pennsylvania School of Medicine, 1871; also a druggist; formerly demonstrator and lecturer on practical pharmacy at his alma mater; aged 82; died, July 6, of senility.

Deloss Hurlbut, Lehigh, Iowa; Bellevue Hospital Medical College, New York, 1879; State University of Iowa College of Medicine, Iowa City, 1883; aged 67; died, June 30, at a hospital in Fort Dodge, of carcinoma.

Milton Corwin Conner ● Middletown, N. Y.; Medical Department of Columbia College, New York, 1883; member of the Radiological Society of North America; aged 69; died, July 5, following a long illness.

James Dennis Jackson, Erie, Pa.; University of the South Medical Department, Sewanee, Tenn., 1906; also a druggist; aged 39; died, May 18, at St. Vincent's Hospital, Cleveland, of ulcer of the stomach.

Thomas Porter Davis, Terrell, Tex.; Southern Medical College, Atlanta, 1880; member of the State Medical Association of Texas; formerly city health officer; aged 65; died suddenly, June 23.

Roscoe Conkling Waterbury ● Kinderhook, N. Y.; Albany (N. Y.) Medical College, 1905; health officer of Kinderhook; at one time member of the state legislature; aged 45; died suddenly, June 6.

Olin L. Abney, Waskom, Tex.; University of Louisville (Ky.) Medical Department, 1881; member of the State Medical Association of Texas; aged 65; died, May 30, of heart disease.

George Frederick Lewis, Mayfield, Calif.; Yale University School of Medicine, New Haven, Conn., 1866; Civil War veteran; aged 81; died, June 25, at the Palo Alto (Calif.) Hospital.

Parson G. Udell, Spencerport, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1871; member of the Medical Society of the State of New York; aged 73; died, June 23.

James C. Johnston, Denver; University of Pennsylvania School of Medicine, Philadelphia, 1874; Hahnemann Medical College of Philadelphia, 1875; aged 70; died, June 8.

Giles A. Blasdel ● Hutchinson, Kan.; Kansas City (Mo.) Medical College, 1898; president of the Reno County Medical Society; aged 51; died, July 3, at Kansas City.

Andrew Mauro, Chicago; (licensed, Illinois, 1877); aged 82; died, July 8, at the West Side Hospital, of acute dilatation of the heart, following a prostatectomy.

Helen Finney Cochran, Oberlin, Ohio; University of Cincinnati (Ohio) College of Medicine, 1916; aged 38; died, July 2, at Cincinnati, following an operation.

D. Fort Anderson, Orlando, Fla.; University of Pennsylvania School of Medicine, Philadelphia, 1853; Civil War veteran; aged 93; died, June 10, of senility.

Thomas Pennel ● Belton, S. C.; Atlanta (Ga.) College of Physicians and Surgeons, 1913; aged 40; died, June 29, at a hospital in New York, of pneumonia.

John K. Davidson, Eagle Lake, Tex.; University of Alabama School of Medicine, Tuscaloosa, 1873; Confederate veteran; aged 81; died, June 24.

Alice Laura Scott Hill, Washington, D. C.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1900; aged 66; died, July 3.

Howard Charles Paden, Niles, Ohio; Cleveland (Ohio) Homeopathic Medical College, 1906; aged 40; died, May 26, following a long illness.

Sara J. Allen, Charlotte, Mich.; Hahnemann Medical College and Hospital, Chicago, 1881; aged 79; died, June 26, following a long illness.

Da Costa Walker, Hot Springs National Park, Ark. (licensed, Arkansas, 1903); aged 42; died suddenly, June 30, of heart disease.

Hartford Sweet, Brookfield, Ill.; College of Physicians and Surgeons, Chicago, 1904; aged 47; died, June 26, following an operation.

Timothy De Witt Warren, East Tallassee, Ala.; Atlanta (Ga.) College of Physicians and Surgeons, 1909; aged 36; died, June 9.

John Henry Griffin ● Armuchee, Ga.; Chattanooga (Tenn.) Medical College, 1902; aged 47; died, June 27, at a hospital in Atlanta.

James Elias Dodson ● Vernon, Tex.; Medical Department Vanderbilt University, Nashville, Tenn., 1875; aged 76; died, June 24.

Ezra Read Larned ● Detroit; Rush Medical College, Chicago, 1897; aged 55; died suddenly, July 3, of heart disease.

Vincent A. Fitzsimons, Edgewood, R. I.; Bellevue Hospital Medical College, New York, 1874; aged 80; died, June 5, of senility.

Henry C. Davisson, Hartford City, Ind.; Indiana Medical College, Indianapolis, 1871; Civil War veteran; aged 81; died, July 6.

William L. Sikes, Sylvester, Ga.; Atlanta (Ga.) Medical College, 1879; aged 72; died, June 22, following a long illness.

Loren H. Snepp, Dayton, Ohio; Ohio Medical University, Columbus, 1901; also a druggist; aged 50; died, June 26.

Thomas Lawton, Hinsdale, Ill.; Chicago (Ill.) Homeopathic Medical College, 1890; aged 61; died, July 10.

William B. Yeo, Cambridge, Ohio (licensed, Ohio, 1896); aged 81; died, April 23, of senility.

Correspondence

IMPOSSIBILITY OF MOVING VERTEBRAE

To the Editor:—In these days, when we hear on every side the claims that the articulations of the spinal column need repeated "adjustments," I think that medical men ought to have some definite data as to the strength of the spinal symphyses.

The following experiments were performed in the anatomy laboratory of the College of Medical Evangelists at Loma Linda, Calif.:

The spinal column selected was a fairly fresh one, and it was taken from a cadaver that had never been put into the preserving tank. A block of wood was taken, and into its surface there was cut a mortise slightly wider than the vertical dimension of a lumbar vertebra. The spinal column was then firmly fastened to this block so that the ventral margin was against the surface of the wood, and the body of the second lumbar vertebra was directly over the mortise, thus leaving that vertebra unsupported except by its union with adjoining vertebrae. Pressure was then applied to the spinous process of the unsupported vertebra by means of a lever of the second class acting downward, and this force was carefully calculated. When the pressure had reached 1,195 pounds, the neural arch was crushed, but the vertebral body remained unmoved.

The broken fragments of the arch, together with the remains of the pedicles were then cleared away, and pressure was applied to the posterior surface of the vertebral body. In this instance a piece of smooth hard wood was placed on top of the surface of the bone so that the force would affect all parts equally, the wood being about 2 mm. narrower than the vertical measure of the vertebral body. On the application of 800 pounds the body was crushed to pieces, a part of it being reduced almost to the consistency of bone meal. Yet for the most part there was no dislocation at the union with the adjoining cartilages. The bone was crushed about a millimeter from that union, but the articulation remained intact over the most of its area.

The tenth thoracic vertebra was next selected, and the pressure was applied at the side. The piece of wood was used in this experiment also, and it was placed so as not to cover the ventral one fourth of the vertebral body. On the application of 1,315 pounds, the body was crushed without materially impairing the articulation with the adjacent cartilages, and the part of the body extending beyond the end of the piece of wood remained unmoved. In other words, the posterior three fourths of the vertebral body was crushed by a force applied at the side without any twisting of the anterior one fourth on its vertical axis.

In the spinal column used, the strength of the vertebral symphyses was greater than that of bone substance of the bodies of the vertebrae.

L. C. KELLOGG, M.D., Loma Linda, Calif.
Instructor in Anatomy, College
of Medical Evangelists.

Infection with Tuberculosis Almost Universal After Sixteen.—There are constantly over 1,000,000 people in the United States sick with tuberculosis, many of whom are careless or ignorant. Large numbers of these persons are not in hospital. Many people, believing themselves to be healthy and appearing well, are occasional "carriers" of the tubercle bacillus. There are many sources of infection. In spite of all precautions, therefore, most people are slightly infected with tubercle bacilli at an early age.—F. C. Smith, *Public Health Rep.* **38**:777 (April 13) 1923.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TESTS FOR BLOOD SUGAR

To the Editor:—There is no laboratory in Macon, Ga., that does blood chemistry at present. Without it we are certainly not in a position to use insulin intelligently. I am writing to inquire whether instruments of the type of the Kuttner microcolorimeter are sufficiently accurate to be relied on in this work and in the other tests for which they are used. If they can be used satisfactorily but need to be corrected by an allowance for constant error, I would like to know what margin of error has to be figured.

CHARLES C. HINTON, M.D., Macon, Ga.

ANSWER.—The Duboscq instrument is, of course, the most accurate and desirable one for all biologic microcolorimetric work. However, it is very expensive and may not justify the expenditure by the general practitioner. Instruments of the type of the Kuttner, Heilige, Bock-Benedict, and Meyer colorimeters are very satisfactory and are widely used both by the general worker and by the larger clinical laboratories. They are sufficiently accurate for all blood chemistry work, as the errors introduced are minimal and constant. With any colorimeter the personal factor enters into the color comparisons to a very large extent, so that the worker must know his instrument. Once having corrected his own personal error, he will have no trouble in doing close work with any of the above-mentioned instruments. There is no correction to be made in using these instruments, as this depends more on the person using them than on the instruments themselves. As what is wanted is comparative results in studying the cases from time to time, the use of the same instrument by the same individual will give concordant results. The purchase of an instrument such as the Kuttner will probably prove satisfactory.

CAUSE OF DEATH IN "ACUTE INDIGESTION"

To the Editor:—Please explain the modus operandi of death in acute indigestion. "Acute indigestion" is a very common cause of death on death certificates. I have never seen the explanation of just how death is produced in these cases.

F. E. PERKINS, M.D., Watertown, N. Y.

ANSWER.—Cases have been reported, after apparently careful investigation, in which death resulted from acute dilatation of the stomach; usually, however, there is also duodenal dilatation. These conditions may result from shock in a manner comparable to that by which paralytic ileus occurs. Indiscretions in diet, the stomach being overloaded, may also bring about so-called acute indigestion, especially when, in addition, there has been some abnormality in the mesentery which allowed the distended stomach to obstruct the duodenum. It is also possible that acute digestive disturbance, by its action on the vagus nerve terminations, may reflexly affect the heart action and may result fatally if there is some heart defect—myocardial or endocardial. Such cases, however, are unusual, and it is probable that most deaths from "acute indigestion" have a more definite cause. The clinically descriptive term is used because the symptoms were those of vomiting and abdominal distress, the real cause for which was not recognized.

TRANSPLANTING AN EYE

To the Editor:—I went blind two years ago from the effect of a black powder blast. I have tried several physicians, but in vain. There has been an advertisement in the newspaper about Dr. Theodore Koppanyi of Vienna in Colorado Springs, Colo., also an item about a doctor from New Jersey who stated about transplanting in eyes. I should like to know whether such a thing was a success. I should like to get some information.

TOM JOHNSON, Minneapolis.

ANSWER.—There is not the slightest evidence that the eye can be successfully transplanted and functionate.

THE WASSERMANN TEST

To the Editor:—1. Is the Wassermann reaction generally considered an infallible test for syphilis? 2. Is a positive reaction ever obtained in any other condition than that of syphilis?

ANSWER.—1. Practically so. 2. Yes. See current comment "The Trend of the Wassermann Reaction" (THE JOURNAL, May 5, 1923, p. 1317).

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

PHILIPPINE ISLANDS: Manila, August 14. Sec., Mr. José V. Gloria, 400 Asuncion, Manila.

THE UNIVERSITY OF COLORADO SCHOOL OF MEDICINE AND HOSPITAL

CHARLES N. MEADER, M.D.
Dean
DENVER

The development of structural plans for a coordinated medical school and hospital, unhampered by the presence of existing units which do not easily lend themselves to a general scheme, presents an interesting opportunity to the architect and to the medical faculty. Advances in hospital practice and medical school organization may be fostered, desirable coordination may be introduced, and economies in administration and maintenance may be promoted by study and forethought in arranging the plans.

Such an opportunity has come to the University of Colorado, and an attempt has been made to devise plans which should in some degree promote correlation and flexibility in medical teaching.

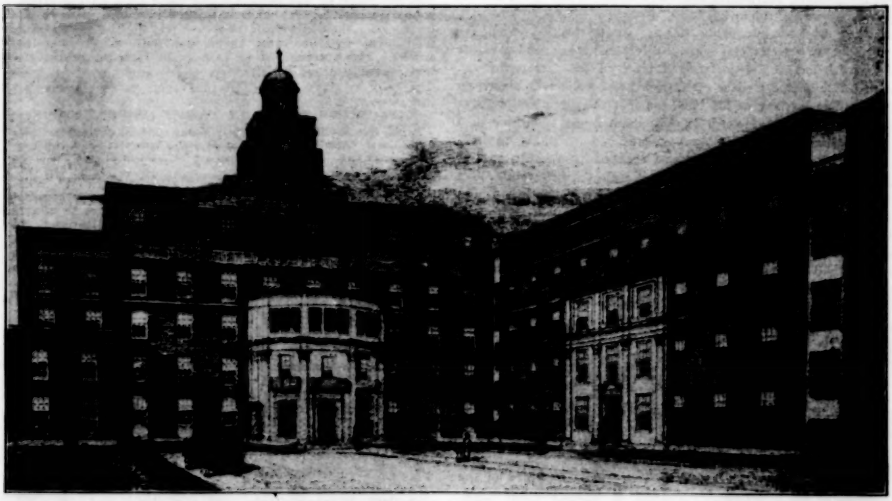
The initial step in the development of its project for the expansion and development of the School of Medicine was naturally the formulation of a definite program. That which was eventually adopted comprised the union of the four years of the school at Denver, the selection of a site sufficiently large not only to accommodate buildings now contemplated but also to allow for future expansion and for the erection of other hospital units should need arise, and the erection of a medical school building housing classes of fifty students each, of a state general hospital of 150 beds, a nurses' home accommodating ninety nurses and a central heating, power and laundry plant. In addition to the group outlined, a state appropriation is available for the construction and equipment of a psychopathic hospital of approximately eighty beds to be located on the same site and served by such central utilities as the power plant, laundry, kitchen and staff dining rooms. The nurses on duty in this hospital will live at the nurses' home.

The Medical School, the School of Nursing, the Colorado General Hospital and the Colorado Psychopathic Hospital are under the complete control of the Board of Regents of the University of Colorado; the General Hospital will receive indigent patients from the entire state, and its staff will be composed of the faculty of the School of Medicine.

The site which was finally adopted comprises a rectangle of about 17 acres with its long dimension running directly east and west, and is located at the edge of the closely built up portion of the city.

UNIT CONSTRUCTION

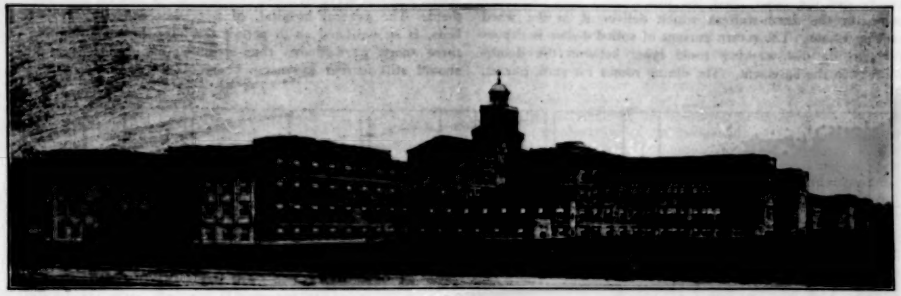
Before actual work on the plans was started, it was determined that they should embody certain fundamental features so far as was feasible. First, that the principle of unit construction should be carried out in both school and hospital to facilitate future changes in the utilization of space, which will probably become necessary either by the trend of development of the institutions themselves or by changes in the practice of medical school and hospital organization. To this end a unit of 12 by 21 feet has been adopted in the school, and each unit supplied with facilities for connection with hot and cold water, gas, electricity (direct and alternating current), compressed air, vacuum and steam, so that any unit may be used for any purpose. All service connections are carried in either the outer or the inner wall, leaving the partitions free, and all partitions are set on top of the finished concrete floor and may be moved without patching the floor. Units may thus be used singly or in groups



Entrance court to University of Colorado School of Medicine and Hospital.

as need may arise, without structural alteration and at a minimum expense for rearrangement.

The same arrangement of partitions and service connections has been carried out in the outpatient building, and, wherever indicated, in the administration building. In the hospital, the only fixed portion of the ward floors is the service room unit; elsewhere the use of partitions as in the school makes it possible to alter inexpensively the present arrangement at any future time, either in the direction of more single rooms or more two and three bed wards, as



University of Colorado School of Medicine and Hospital.

experience may indicate. Here, as elsewhere, service connections are carried in outer or inner walls. The present arrangement provides for ward units of sixteen beds, divided by 6 foot partitions into cubicles with beds so placed as not to face the light, and for varying numbers of one and two bed quiet rooms in the different services.

CORRELATION

A second basic consideration was to provide for close correlation, not only of medical school, hospital and outpatient department, but also of the various departments housed in each, and for central location of those units used mutually by several departments. The fundamental aim has been so to correlate the laboratory and clinical departments structurally that correlation of function would be promoted. Extended study and rearrangement have evolved the plans here presented, which it is believed represent a step in this direction.

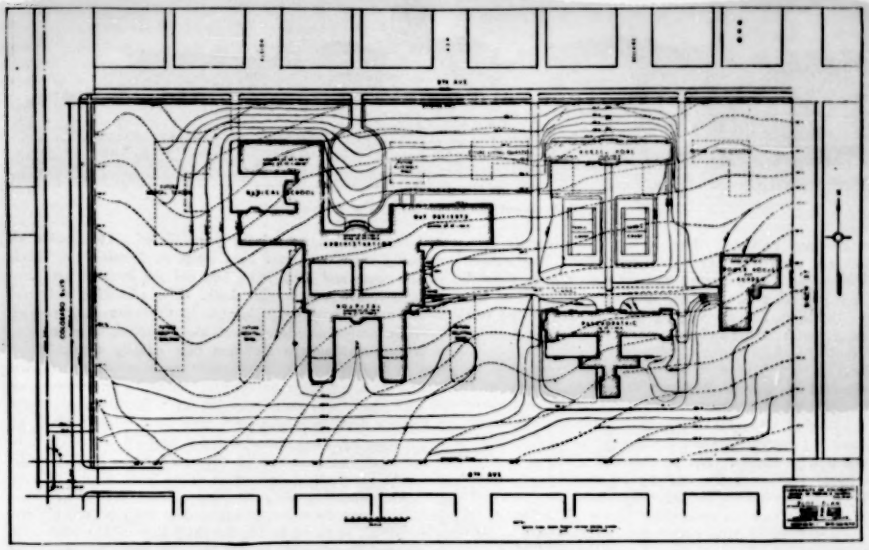
In general, it will be noted that students and faculty have easy and direct access from school to hospital, from school to outpatient department, and from outpatient department to hospital, and vice versa. The library, museum, clinical amphitheater, and roentgenology department, used jointly by school, hospital and outpatient department, are conveniently located in the central administration building, the amphitheater being flanked on each side by museum and library for the convenient assembling of specimens and charts to accompany clinical demonstrations. The operating suite is placed on the fourth floor of the administration building, central to the hospital, easily accessible to small groups of students from hospital, outpatient department or school, and connected by stairs with the department of pathology on the floor below. On the first floor of the administration building are grouped the administrative office of the hospital and school of nursing, adjacent to the dean's offices in the school and in close connection with the record room, admitting unit, and doctors' lounge. In the medical school, the departments of clinical pathology and bacteriology, of biochemistry and physiology and pharmacology, and of pathology and anatomy have been placed on the same floors, that member of each pair most closely connected with clinical work being in each case placed nearer the hospital. Animal quarters and animal operating rooms are provided on the fourth floor of the medical school, while on the ground floor the postmortem unit and cadaver storage occupy the two wings, with direct elevator connection with the latter to the department of anatomy on the third floor. The central section of the ground floor houses the students' locker rooms, lounging rooms and book store in close relation with the administrative offices.

A further application of the principle of centralization of mutually used units has been made in locating the single record room and drug store between the hospital and outpatient department, serving both. The admitting unit and isolation unit have been located in the connecting portion between outpatient department and hospital, thus serving both and making the isolation unit equally available for suspicious cases which may appear in the outpatient department, admitting room or hospital wards. The arrangement is such that these units may be easily incorporated in the outpatient department should it later seem wise to make all admissions by that route. In the hospital, correlation of departments has been carried out vertically by placing medicine and the medical specialties in the west wing, and surgery and the surgical specialties in the east wing. This division is not, however, maintained in the case of children, who will all be cared for on the third floor of the west wing in the pediatrics unit. It will be noted that this unit is on the same floor as the obstetrics unit, facilitating correlation of these departments in the care of the new-born. The special teaching function of the hospital is recognized by the provision of a conference room and a students' laboratory on each floor.

TRAVEL AND TRANSPORTATION

A third primary purpose to which much thought has been given is that of minimizing horizontal travel and of avoiding cross currents so far as possible in future operation. Both are believed to be important factors in economy and ease of administration. Vertical travel in the medical school is provided for by two elevators, one to be used exclusively for animals, cadavers, waste and supplies. In the hospital, an elevator in the administration building provides for staff and visitors, while that in the hospital proper (an additional one is shown to provide for eventual expansion) cares for the transportation of patients and supplies and internal needs in general. Linen chutes are provided for soiled linen. An elevator in the outpatient department provides for patients unable to use the stairs. The medical school and hospital are connected by separate corridors on the first two floors,

above which level direct access is had by the main central corridor which connects hospital and administration buildings on each floor, while communication between outpatient department and hospital is direct on both floors of the former. All supplies destined to any part of the group will enter through the central receiving room on the east side of the basement and, after checking, pass direct to their appropriate store-rooms. The kitchen is centrally located in the basement, lighted overhead and at the sides and ventilated by large flues. The store-rooms and preparation rooms serving it are grouped at one end, while the prepared food passes out the other, past the diet-kitchen and dietitian's office, to the dumb-waiters which deliver it in the ward serving rooms. The return current of soiled dishes is deposited in the dish-washing room lying between the dumb-waiters in the basement. The dining rooms for staff, nurses,



Plot plan.

students and male and female help are grouped in the administration and hospital wings, easily accessible from the kitchen and on the same floor with it. Separate entrances are provided for each of these dining rooms with toilet and locker rooms for male and female help; a central linen and sewing room, with associated gauze reclaiming room, and a central sterilizing and dressing preparation room will serve the entire group.

PROVISIONS FOR EXPANSION

The experience of other hospitals and medical schools shows that it is unwise not to undertake, in the original plans, to foresee possible future expansion, and that this may occur in unexpected directions. Such prevision has accordingly been sought in developing the present plans. The site provides ample room not only for the further development of the present group but also for the erection of detached hospitals of special character, should any wish at some future time to come in as teaching units. The present medical school provides for laboratory classes of fifty, but lecture rooms accommodate 100, so that expansion may be provided either by conducting laboratory classes in sections or by extension of the wings of the present building, or even by reduplication of the present unit in an inverted position. An intermediate stage of expansion or the extension of the research activities of the school, independent of increased enrolment, may be provided for by the expansion of the west connecting corridor between school and hospital into a three story unit containing individual research rooms. These will be easily accessible to both the clinical and the laboratory staffs, and will serve to strengthen the ties of interest between them. The general hospital, of a present capacity of 150 beds, is so designed as to permit the later superposition of three more ward floors, thus doubling its capacity; and should still further expansion be required eventually, additional identical units of whatever number of stories may be required can be placed at either side of the present units to an eventual total expansion of 600 beds. The outpatient building may be expanded either by additional stories or by an L addition. The administration building has not room for lateral expansion, but is believed to be ample for any probable future needs. It will be noted that in no case does expansion involve the sacrifice of the correlations and centralizations which have been worked out for the present units.

As a preliminary step to the development of plans, a study of wind direction and velocity for Denver was made from the records of the U. S. Weather Bureau in order to secure a minimum exposure of wards to violent winds, and a maximum avoidance of smoke and odors from the heating plant and laundry. A sun and shadow study was also made by constructing an exact cardboard model of the hospital wards, exposing it to the sun on the site and plotting the shadow

curves on it. It was thus possible to determine the best orientation of this unit and its optimum height to width relationship to secure a maximum of sunshine.

Architecturally, the buildings of the group have been designed in a simple Georgian style, with little attempt at ornamentation, reliance being placed on mass and line to secure a simple and dignified effect.

In the development of these plans the architect and I visited most of the medical schools and important hospitals of the Middle Western and Atlantic states, and discussed the plans with deans, superintendents, faculty, nurses and others. It is a pleasure to acknowledge their universally helpful cooperation and the sound advice and criticism which they have so freely given.

Thirteenth and Welton streets.

Book Notices

DISEASES OF THE SKIN. A Manual for Students and Practitioners. By Robert W. MacKenna, M.A., M.D., B.Ch., Honorary Dermatologist, Royal Infirmary, Liverpool. Cloth. Price, $6.50 net. Pp. 451, with 166 illustrations. New York: William Wood & Co., 1923.

This is a recent addition to the already crowded field of dermatologic textbooks, and must compete with several established works of similar size. The author has adopted a classification based on etiology; but, as he states in the preface, in a field in which there are so many undiscovered etiologic factors, the point is soon reached at which such an arrangement must break down, and the arrangement of diseases is then based on their clinical characteristics. This method of classification leads to unfamiliar groupings. The book, prepared for the student and general practitioner, excludes some of the rare dermatoses, but many of them are considered briefly. The discussion of the various dermatoses is capable, and reflects the author's observations. Differential diagnosis is given special attention, and the treatment of the various dermatoses is given full consideration, especially methods that have commended themselves to the author. There is, however, frequent mention of colloidal therapy, ionization and similar measures, which are used more or less extensively in England, but which have not enjoyed wide use by American physicians. In the section on general therapeutics, there is a great deal of practical advice. The illustrations are numerous, well selected, and for the most part well reproduced. The book is attractively printed, and is to be commended as meeting the requirements for which it was designed; but it will scarcely serve to replace other works of similar scope.

MALAISES DES AVIATEURS. Leurs Causes; Leurs Explications; Leurs Remèdes. Par le Drs. Perrin de Brichambaut & P. Béhague. Paper. Price, 1 franc. Pp. 15. Paris: Librairie Gauthier-Villars.

This brochure is an example of the careful watchfulness of the French medical officer to guard the health of the aviators, and is well worthy the attention of officers and men engaged in flying. It is a brief compendium of general hygienic advice for the flier, and is of especial value for the officer, who may with advantage know the general rules of life particularly adapted to his men. The writers narrate briefly, in nontechnical language, the altered conditions in which the body is placed during flight, and the precautions that may be taken to avoid troubles that may possibly arise. To each system a short paragraph is given, followed by an account of the precautions to be taken. For instance, under the heading of the circulatory system and the kidneys, the effects of variations of atmospheric pressure are pointed out, and, as a safeguard to keep these parts healthy, the flier is warned of the dangers of alcoholic liquors and of syphilis. The part played in balancing by the internal ear is stated briefly, and the importance of equalizing pressure in the middle ear during rapid changes of atmospheric pressure. The flier is warned not to regard lightly a persistent cold in the head, which may interfere with the working of the eustachian tube, and he is advised to keep the external meatus free of any blockage by wax or cotton. Finally, as flying stress is not uncommon, the authors point out the importance of the central nervous system as the regulator of the human organism, which must be kept in perfect order by sufficient sleep and sobriety in all things.

STERILITY IN WOMAN: ITS CAUSES AND TREATMENT. By Robert A. Gibbons, M.D., M.R.C.P., C.M., Gynecologist to the Grosvenor Hospital for Women. Cloth. Price, 12 shillings, 6 pence net. Pp. 244, with 44 illustrations. London: J. & A. Churchill, 1923.

The author has analyzed the subject of sterility in woman, beginning with thirty-three pages of statistics presented in readable style, and on the basis of which he concludes that the state should require a medical certificate from both parties; that special provision should be made for the care of illegitimate children because of the high mortality among them, and that there should be compulsory notification of all gonorrheal and syphilitic infections. Fifty-two pages are devoted to the anatomy and physiology of the genitalia. The literature has been very well reviewed, and is deficient only in the newest work on the causation of menstruation with a complete explanation of its mechanism and the rôle played by the tryptic secretion of the uterine glands (O. Frankl). There can be no dispute as to the correctness of the author's four postulates that determine pregnancy: 1. Ovulation must occur. 2. The ovum must be healthy. 3. The uterine mucous membrane must be physiologically sound. 4. The spermatozoa must be healthy. The author does not stress the aspiration theory of insemination, nor does he emphasize the importance of cupareunia. If the work of Kehrer is conclusive, this phase of sterility assumes much more significance, Kehrer believing that the incomplete orgasm results in a chronic hyperemia and chronic lymph stasis of the pelvic organs and resultant alterations in structure and function. In an excellent analysis of the male side of the sterility equation, the author emphasizes the importance of not giving an absolutely bad prognosis merely because of aspermia, pointing out the occasional occurrence of pregnancy when the husband has for years shown aspermia and then at length some spermatozoa have reappeared. In a detailed description of the microscopic appearance and behavior of the spermatozoa, the author justifies the importance of much greater study of the semen in its relation to sterility. There is much more to the actual fertilization problem than the mere observation of the presence of active spermatozoa. The rôle of the finer biochemical reactions is little understood. In twenty pages devoted to structural causes of sterility, the subject is well canvassed. It might have been more profitable to lay greater emphasis on the paragraphs dealing with strictures of the cervical canal, both congenital and acquired, and the problem of habitual abortion. In the chapter on functional and constitutional causes, the important rôle of malnutrition, obesity, alcohol and drugs, vaginismus and endocervicitis is well brought out. Profluvium seminis is properly relegated to an unimportant place. However, the author might well have devoted more space to dyspareunia and the endocrine interplay. Under medical treatment he takes up the various causes as laid down in the preceding chapters, and presents well balanced and sane views on such difficult subjects as dyspareunia, incompatability, endocervicitis, the chronic infections, and anaphrodisia. Operative treatment is well discussed in thirty-five pages covering all the usual subjects, including pneumatic dilation for partial stenosis of the tube as it was done by Eden and Lockyer and illustrated in their textbook several years ago. The entire volume is well worth careful reading, and is a real addition to systematic understanding of the problems involved, made readily accessible to the general practitioner.

ARTIFICIAL LIMBS AND AMPUTATION STUMPS. A Practical Handbook. By E. Muirhead Little, F.R.C.S., Consulting Surgeon to the Royal National Orthopaedic Hospital. Cloth. Price, $4.50. Pp. 319, with 257 illustrations. Philadelphia: P. Blakiston's Son & Co., 1922.

This is unusual in that the subject matter is unusual, particularly to the American surgeon who, probably because of less extensive experience with amputations than his European colleague, has given little or no thought to kineplastic procedures on amputation stumps. The work opens with an

interesting historical introduction; next follows a chapter on the surgery of amputations. The mechanics of various joints and muscles and their relations to various types of protheses are next described. A large part of the book is devoted to an extensive cataloguing of the various types of artificial limbs and their mechanics. These are profusely illustrated by excellent reproductions of photographs. The book is not bulky, and was not intended as a complete encyclopedic work. It has many interesting surprises for the average surgeon not familiar with recent advances in the development of artificial prostheses.

ANLEITUNG ZUR DIAGNOSE UND THERAPIE DER KEHLKOPF-, NASEN UND OHRENKRANKHEITEN. Vorlesungen gehalten in Fortbildungskursen für praktische Aerzte. Von Dr. Richard Kayser. 13th and 14th editions. Paper. Pp. 234, with 140 illustrations. Berlin: S. Karger, 1923.

This is the fourteenth edition of a small guide to ear, nose and throat diseases originally compiled from the author's lectures. It is designed primarily in its present form for the use of general practitioners, and as such, is far more detailed and text-laden than similar volumes published in England and America. For this reason there is little to recommend it to the practitioner on this side of the water. The diagnostic methods and instrumentation advised will seem crude and awkward to the American physician, and it is doubtful whether much of the armamentarium described is still obtainable in our up-to-date instrument houses. The illustrations do little to assist the reader through the verbosity of the text, as they consist principally of small pen pictures.

EPIDEMIOLOGY AND PUBLIC HEALTH. A Text and Reference Book for Physicians, Medical Students and Health Workers. By Victor C. Vaughan, M.D., LL.D., Emeritus Professor of Hygiene in the University of Michigan, assisted by Henry F. Vaughan, M.S., Dr.P.H., Commissioner of Health of the City of Detroit, and George T. Palmer, M.S., Dr.P.H., Epidemiologist for the Department of Health of the City of Detroit. In three volumes. Vol. II: Nutritional Disorders, Alimentary Infections, Percutaneous Infections. Cloth. Price, $9. Pp. 917, with 53 illustrations. St. Louis: C. V. Mosby Company, 1923.

The high standard set by the Vaughans and Palmer in the first volume of their "Epidemiology and Public Health" has been maintained in the second. The volume before us deals with nutritional disorders, alimentary infections and diseases contracted through the skin. An attempt is made to group diseases according to the avenues through which the virus reaches and infects the body. This is a useful arrangement for the purposes of prevention and public health administration, but the authors evidently had trouble with the classification. The authors frankly admit the difficulties, for there are some epidemic diseases for which there is no specific virus, there are others in which the avenues of infection are multiple, and they might have added that there are a number about which our knowledge is inadequate. Any grouping will need rearrangement with increase in our knowledge of epidemic diseases, their causes and modes of transmission.

The book continues to be a thoroughly reliable encyclopedia of knowledge concerning the ills of mankind. It is not only a compendium of reference, but also a readable textbook. Technical details are avoided, obtuse scientific researches are clearly epitomized; in fact, the style has charm and directness, and the high lights of preventive medicine are brought out with dramatic force. The story of yellow fever, the drama of rabies, the romance of typhoid fever and the history of plague are told with telling effect.

One of the outstanding features of the book that merits special commendation is the conservative, even cautious attitude which the authors assume toward many of the recent scientific advances. While judiciously critical concerning recent laboratory researches, the work is fully alive to modern progress: it is up to the minute. Vaughan does not admit unreservedly the nutritional cause of rickets and pellagra, and adheres to the possibility of infection in scurvy and endemic goiter. It is refreshing to find our ignorance on many points so frankly and manfully stated: the histories of the medical sciences and the conquests of sanitation are not lessened by an acknowledgment of our limitations.

Epidemiology has not yet been clearly defined. Vaughan's conception is broad and deep. He includes any information concerning a disease that throws direct or collateral light on its vagaries, or that may be useful in prevention or even in understanding its nature. He draws a sharp distinction between epidemiology and bacteriology, insisting that the former is very much broader and embraces the latter. He emphasizes the point, well known to epidemiologists, that some diseases were worked out and sufficiently well known to form the basis of rules and regulations for their prevention and control long before their causes had been discovered. He cites cholera as an example, and he might have added yellow fever and other infections. The historical side of each infection is illuminatingly drawn, and the statistical side is illustrated with special examples taken largely from American experience.

Food poisoning is well considered, this being one of the subjects to which Vaughan has made notable contributions. It is now admitted that food poisoning, for the most part, is an infection. There is a tendency at present to call all forms of food poisoning botulism: this is certainly an error. There can be no doubt that there are many bacteria in the colon-typhoid group, including the paratyphoids, which are the real cause of most cases of so-called food poisoning. Vaughan believes that food poisoning due to putrefactive changes in food is now very rare compared with what it was thirty or forty years ago. This he attributes to a greater care given to the preparation and care of food. Especially is this true of milk and milk products.

In a work of this sort, some chapters are bound to be better than others, and a certain unevenness is doubtless unavoidable in an undertaking of this magnitude. We would like to have more concerning plague, typhus fever, and infestations due to some of the animal parasites.

Evidence of Vaughan's long and active experience in the field, in the laboratory and in administrative positions shines forth in this volume, as in the first. He has long been a teacher of teachers, and he has now summarized his knowledge in permanent archives for all time. That Vaughan received his training in another generation is evidenced by his adherence to such terms as "cholera infantum"; that he leads the present generation in originality of thought is indicated by his proposal of new terms for old troubles: thus, he would have us call food poisoning "bromatotoxismus," which seems a little too long a word to become popular.

The publishers have again done their part well. The paper, print and illustrations are excellent. The book is indispensable for sanitarians, but will also be useful for the practitioner of medicine, as well as nurses, social service workers and students in medical and health schools.

RICKETS: THE RELATIVE IMPORTANCE OF ENVIRONMENT AND DIET AS FACTORS OF CAUSATION: AN INVESTIGATION IN LONDON. By H. Corry Mann, O.B.E., M.D. Medical Research Council, Special Report Series, No. 68. Paper. Price, 2 shillings, 6 pence net. Pp. 99. London: His Majesty's Stationary Office, 1922.

This is a comprehensive and painstakingly controlled report. The author emphasizes the rôle which unbalanced diet plays, contending that excessive carbohydrate with deficient fat is the main causative factor. He points out how lack of means promotes the use of such an adverse fat-carbohydrate diet. Contrary to Paton of Glasgow, he does not find that bad housing, and overcrowding and deficient air space are responsible, and he supports his contention by control cases. Other influences, such as heredity, are discussed and evaluated. This field of study is broad, embracing widely varying social conditions; the deductions, therefore, are not from any one group of patients, living, necessarily, under the same conditions. The method and thoroughness of investigation make the author's conclusions convincing.

IMPOTENCY, STERILITY, AND ARTIFICIAL IMPREGNATION. By Frank P. Davis, Ph.B., M.D. Second edition. Cloth. Price, $2.25. Pp. 166. St. Louis: C. V. Mosby Company, 1923.

If the reader expects to find scientific dissertation and instruction here he will be disappointed. This is a rather erotic publication which, unfortunately, at times sinks to the level of pornography. The presentation of superstitions and obsolete remedies does not add to its value.

Medicolegal

Testimony from Subjective Examination and Symptoms

(Wells Bros. Const. Co. v. Industrial Commission et al. (Ill.), 137 N. E. R. 791)

The Supreme Court of Illinois, in reversing a judgment that confirmed an award in favor of an applicant for compensation under the workmen's compensation act, says that the applicant was injured by being struck on the head, but the details of the accident did not appear in the evidence. The questions in dispute were as to the period of temporary disability and permanent disability, if any. Several physicians testified in the case, and the court thinks there was support in the evidence for the argument made that considerable of the testimony of the physicians testifying for the applicant was based on a subjective examination, while it might be said also that some of the testimony of the physicians for the employer was based on the subjective symptoms as stated to them by the applicant. This court has more than once held that the testimony of physicians is incompetent which is made after examination of the applicant with a view to testifying and is based wholly on the physicians' observation of outward manifestations within the applicant's control, such as pressure or twitching of the hands or turning in of the toes. This court has also held that, when the physician's statement is based partly on his own observation and partly on the statement of the case made by the injured person, such evidence is not admissible. Therefore it is clear that the testimony of a physician, so far as he testified that it was based only on the applicant's actions and statements, was inadmissible. The testimony of another physician who based his conclusion as to the applicant's condition partly on the statements of the subjective symptoms made to him by the applicant was objectionable, since, under the decisions of this court, a physician is not authorized to base his conclusions as to a person's injury in part on objective symptoms and in part on subjective symptoms derived from the patient's statements to the physician. It was clear from the testimony of the physicians who testified for the applicant that they had him under their care solely for the purpose of examination to prepare themselves for testifying in his case, and the authorities all agree that the testimony of experts in such cases should not be based on any subjective symptoms or the statements of the applicant as to the effect of his injury. However, the portions of the testimony of the physicians which pertained to physical examinations made by them and which were not based on the patient's statements might be held competent, as would also their opinion evidently based on their own judgment from the objective examination of the patient.

Proof of Roentgenograms—Conjectures of Experts

(Stevens v. Illinois Cent. R. Co. (Ill.), 137 N. E. R. 859)

The Supreme Court of Illinois, in reversing a judgment rendered in favor of the plaintiff for damages for personal injuries, says that the most serious error committed by the trial court in the admission of incompetent evidence was the admission of a so-called roentgen-ray film which purported to show the condition of the plaintiff's skull. A witness identified a film produced in court as one prepared by him, and testified that it was a roentgen-ray picture of the plaintiff's skull. Although a roentgenogram produced by roentgen rays cannot be verified as a true representation of the subject, in the same way as a picture made by a camera, the rule in regard to the use of ordinary photographs on the trial of a cause applies to roentgenograms of the internal structure and condition of the human body taken by the aid of roentgen rays, and such a roentgenogram, when verified by proof that it is a true representation, is admissible in evidence. Like other photographs, they cannot be received as evidence until proper proof of their correctness and accuracy is produced. It must be established by competent evidence that the picture correctly portrays the condition it purports to represent before it has any place in the case. Some witness must be able to testify that the picture offered in evidence shows accurately what the witness saw when he looked into the body with the fluoroscope, or he must be able to say that he is skilled in the use of the roentgen-ray machine, and in taking and developing roentgenograms and that he took the picture offered in evidence with the body in a certain position (describing it), with a machine which he knew to be in good working condition and accurate, and that from his experience he is able to say that the picture produced by the machine was an accurate picture of the internal condition of the body. These methods of establishing the accuracy of the picture are not exclusive, but, whatever method is used, its accuracy must be established before it is admitted.

Applying these well-established rules to the facts in this case, it is apparent that the plaintiff failed to establish the preliminary requirements necessary to make the roentgen-ray film admissible. The witness did not state that he saw the condition of the plaintiff's skull, or that the film correctly represented this condition. Nor did he state how the film was taken, or that he had ever had any previous experience whatever with a roentgen-ray machine, or that he had ever made a roentgen-ray photograph, or that he knew anything about how they ought to be made, or that the roentgen-ray machine used by him was accurate, or that it was in working condition at the time the exposure was made, or whether he had ever checked a picture made by his machine with a condition seen by his eye with the use of the fluoroscope, to determine whether the machine accurately portrayed the internal condition of the part of the body under investigation.

The error of admitting this film and the photograph printed from it was aggravated by permitting two physicians to examine the film and the photograph, and then say what diseases and disabilities might possibly result to the plaintiff from the injury to his skull which the roentgen-ray film purported to show. They testified that he might possibly have an abscess of the brain, that there might be an adhesion of the brain to the dura and a consequent lessening of the caliber of the skull, and that epilepsy might result. They were permitted to say, further, that these things might result in his death. It has been repeatedly held by this court that a mere possibility that future pain or suffering may be caused by an injury, or that some disability may result therefrom, is not sufficient to warrant an assessment of damages. Mere surmise or conjecture cannot be regarded as proof of an existing fact or of a future condition that will result. Expert witnesses can testify or give their opinion only as to future consequences that are shown to be reasonably certain to follow.

Must Accept Such Physician as Country Affords—Duty as to Undergoing Retreatment

(H. T. Whitson Lumber Co. v. Upchurch (Ky.), 248 S. W. R. 243)

The Court of Appeals of Kentucky, in affirming a judgment for $10,000 damages in favor of plaintiff Upchurch, says that he was a boy 12 years of age who, while in the employ of the defendant lumber company, had a wheel of a truck run on his left thigh, breaking the bone, and had his foot and ankle on the other leg badly mashed. In consequence, his left leg was bent and shortened by 2 inches, while his right ankle was swollen, the bones of his foot misplaced, and he suffered from fallen arches. The injury occurred at an isolated place near the Tennessee line. Both the boy's father and the company's foreman endeavored to get medical assistance without avail, and finally, at the suggestion of the father, the foreman procured a physician who was not licensed in Kentucky. The physician arrived nine or ten hours after the accident, and, together with a college student, set the limb and dressed the other injuries.

The defendant contended that it was contributory negligence on the boy's part not to have procured another physician. But even an adult is required only to exercise ordinary care and prudence in the selection of his physician, and must accept such as the country affords. Certainly no more could be required of this helpless 12 year old boy, lying crushed and mangled as he was for hours. Moreover, even if the father had been able to procure another physician and negli-

gently failed to do so, this negligence could not be imputed to the boy. In addition to this, the company's foreman was participating in the matter, and not only did not object to the physician procured, but actually sent for him, and the company was in no position to complain.

Two officers of the company testified that they visited the boy's parents, and in his presence proposed to send him to a hospital for retreatment, and stated that the company would pay his expenses, or that they would have a surgeon treat him at home. This treatment was outlined by three physicians, who testified that the fractured limb could be rebroken and straightened, making it just a little shorter than the other leg, or that, by breaking it and grafting a bone on it, it could be extended to its original length; that the ankle and foot could also be treated, and that, while they could not be fully restored to their normal condition, the boy's injuries as a whole could be reduced to such an extent that there would be practically no physical impairment of his power to earn money; that this operation would be attended with slight risk and but little pain. They admitted, however, that it would require the administration of anesthetics, an expensive operation, and quite a long time spent in the hospital. The boy and his father and his mother, on the other hand, denied that these officers made them any such propositions for surgical treatment or that they refused to accept it.

It may be considered as a general proposition of law that, when a person claims damages resulting from the negligence of another, and it is shown that by a practical treatment he can reduce his injuries or secure relief from them without serious danger to himself, it is his duty to do so, or to have his damages minimized in proportion to the amount his injuries would have been reduced by such treatment, less the cost of treatment and compensation for the pain occasioned thereby; but this court is not aware of any decision in which it has been held that such a course is a condition precedent to a recovery of damages. At any rate, one is not required to take the risk of a serious surgical operation for the benefit of the wrongdoer, and his failure to do so does not reduce his verdict to merely nominal damages. Indeed, it has been held that under such circumstances a refusal to undergo a serious and critical surgical operation could not be considered in mitigation of damages.

Nor does the court think that under the circumstances the verdict was excessive. Issues of fact were raised which were submitted to the jury, and it was the province of the jury to determine as to the advisability of a surgical operation and its attendant risks, as well as to the result to be obtained thereby, and this court is not prepared to say that the verdict strikes one at first blush as being a result of passion or prejudice.

Opinions of Medical Men Under Plea of Insanity

(Anderson v. State (Ala.), 95 So. R. 171)

The Supreme Court of Alabama, in affirming a judgment of conviction of robbery where the defendant pleaded "not guilty by reason of insanity," says that under that plea the issues presented gave much latitude both to the defendant and to the state to introduce evidence of the defendant's acts, declarations, and conduct, not only at the time of the offense, but prior and subsequent thereto. The opinions of medical men, under a plea of insanity, are by no means binding on juries even when such experts have had ample opportunity to observe the character and phenomena of the defendant's disease, such opinions being admitted to be weighed with the other evidence; and, if the whole evidence does not clearly prove to the reasonable satisfaction of the jury that insanity (such as is recognized to excuse crime) existed at the time the act was done, the jury may find the defendant guilty, if the other facts warrant that verdict, although the medical witnesses are of the opinion that the prisoner was insane at the time of the commission of the offense. Under the issue of "not guilty by reason of insanity," and when on the trial material evidence pro and con is introduced, there are presented opposing presumptions on a subject-matter involving the application of common knowledge, as to which expert and nonexpert witnesses may testify. Such being the character, extent, and opposing presumptions of the testimony in this case, a jury question was presented. The burden of proof imposed by the law on a defendant under a plea of insanity in criminal prosecutions is that the same shall be clearly proved to the reasonable satisfaction of the jury.

Liability for Needle in Body After Operation

(Sellers v. Noah (Ala.), 95 So. R. 167)

The Supreme Court of Alabama says that in this case, which was transferred to it from the court of appeals, plaintiff Noah was awarded a judgment for damages, which is affirmed, against the defendant, a surgeon, who, it was charged, breached his contract with the plaintiff in performing an operation for appendicitis, the alleged breach consisting in leaving a needle or a portion of a needle in the plaintiff's body. The counts of the complaint declared on the breach of the surgeon's contract. They were not in tort; the reference to negligence therein being but descriptive of the method or means whereby the contract was breached. This construction of the counts confirms the correctness of the trial court's action in eliminating the plea of the Alabama statute of limitation of one year, applicable to actions ex delicto (for torts or wrongdoing). In operating on or in treating a patient, a surgeon's duty is to bring to the service and to exercise such reasonable care, diligence, and skill as physicians and surgeons in the same general neighborhood, in the same general line of practice, ordinarily have and exercise in a like case. Neither a physician nor a surgeon is an insurer of the successful issue of his treatment or service. He is responsible either on contract or in tort for failure to meet the exactions of the duty stated.

When a surgeon performing an operation leaves in the body of his subject, after closing the wound, a foreign substance that causes injury or damage to the subject, the burden of proof passes to the impleaded surgeon to show that he exercised the stated reasonable and ordinary care, skill and diligence in respect to the operation on his subject, including the process of closing the wound. In this case there was evidence directed to showing that a needle or a part of a needle was left in the body at the time the defendant operated on the plaintiff for appendicitis, and that it worked out about three years later, meantime causing the plaintiff pain and physical disability, and that the place on the surface of the plaintiff's body where the needle appeared, and from which it was removed, was very near, if not at, the point at which the incision was made by the surgeon. There was also evidence to the contrary; but if the jury concluded that the needle was left in the body of the plaintiff by the surgeon at the time of the operation, the burden of proof passed to the surgeon to show that the needle's presence was not due to the absence of reasonable and ordinary care, skill and diligence on his part. Both of these inquiries of fact were seriously contested in the evidence, and it was the jury's province to solve them.

In accordance with the evidence for the defendant that in the operation the defendant used no such needle or part of a needle as that which the plaintiff contended worked out of his body near the place of incision, the defendant requested, and the trial court refused, several instructions predicating the defendant's nonliability if the jury found that the thus hypothesized fact was true. Those requests for instruction would have invaded the jury's province to conclude on the issues of fact. A surgeon may omit the discharge of or violate the duty the law imposes on him by permitting, through the absence of requisite care, diligence or skill, a foreign substance to enter or remain in the body of the subject of his operation. The fact, if so, that the defendant used in this operation no such needle was, of course, a circumstance directed to showing no breach of the defendant's contract in the premises; but it did not conclude against the probability that, if this needle or part of the needle did enter the plaintiff's body through the incision or in the process of performing the operation, its presence in the plaintiff's body was not to be otherwise accounted for; as, for instance, through this needle's being attached to or commingled with material or appliances used by the surgeon in performing the operation.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirty-Fifth Annual Meeting, held at French Lick Springs, Ind., May 31-June 2, 1923

The President, DR. L. EMMETT HOLT, New York, in the Chair

Allergy to Cow's Milk in Infants with Severe Malnutrition

DRS. OSCAR M. SCHLOSS and ARTHUR F. ANDERSON, Boston: An investigation was undertaken to determine, if possible, whether the absorption of unaltered protein takes place in cases of atrophy. In eighty of the ninety-eight cases of atrophy observed, the blood contained precipitin for cow's milk. Precipitin was not present at all times in each individual case, but when present was usually marked. It was also possible to demonstrate that, in some of the cases in which precipitin was present in the blood, the anaphylactic antibody was also present. By means of injection of the patient's blood, it was possible passively to sensitize guinea-pigs to cow's milk. In confirmation of previous work by various observers, it was possible to demonstrate by means of precipitin and anaphylactic tests the absorption of unaltered or partly altered cow's milk protein during the course of diarrhea. In some such cases, precipitin occurred ten days or more after the absorption of unaltered protein. The investigation demonstrated the presence of precipitin and anaphylactic antibodies in the blood of atrophic infants. It is impossible at present to determine whether the presence of these reaction bodies, caused by the absorption of unaltered protein, has any definite and practical clinical bearing.

Vitamin Content of Breast Milk

DRS. FREDERIC W. SCHLUTZ, C. C. KENNEDY and L. PALMER, Minneapolis: Our investigations show that breast milk contains both fat-soluble vitamin A and water-soluble vitamin B, but it seems to contain less vitamin B than cow's milk and seems to be richer in vitamin A than in vitamin B. It seems possible to influence both the A and B factors in breast milk by proper diet. Rats gained in weight and improved in general condition faster on cow's milk than on breast milk. Perhaps, the fact that they took cow's milk easily and breast milk very poorly may explain why they did not thrive so well on breast milk, but the lower vitamin B content of breast milk may have something to do with the results.

DISCUSSION

DR. ALFRED F. HESS, New York: In these tests we are estimating the requirements for rats. It is possible that the requirements may be different for infants.

DR. E. W. SAUNDERS, St. Louis: There is no matter that needs more attention than the diet of the nursing mother, which, in this country, is abominable and atrocious beyond expression. I have seen more severe cases of rickets in children on breast milk than in those fed any other food.

A Study of Rickets in the Breast Fed

DR. L. R. DE BUYS, New Orleans: This study was made on 197 babies. Lack of supervision and care seemed to influence rickets to develop with more intensity. There was no noticeable increase in the symptoms of rickets due to the simple acute illnesses, the numerical order of the child in a family, nor to the number of children in a family. Syphilis was noted in only eight instances. There was no relation between syphilis and the severity of the rickets. The atmospheric conditions during the period of this study showed that the sunshine and the temperature were greater than the normal average and that the precipitation pressure was less than the normal average. The disease was present in 100 per cent. of the cases in this study. It was more marked in the colored than in the white. There was no seasonal peak for any of the symptoms. There was, however, a seasonal peak for the combined symptoms of the disease noted in the month of March. Costal beading was the most frequent symptom. Enlarged epiphyses, cranial bosses, flaring ribs, and craniotabes followed in the order named. Each symptom was more common in the colored than in the white; beading showing the least difference. The difference increased as the frequency of the individual symptoms decreased, with the exception of craniotabes. Rickets should not be looked on as a disease of the second half of the first year, but as a disease which may begin at least shortly after birth.

DISCUSSION

DR. ALFRED F. HESS, New York: It is interesting that these studies made in the South show the same general incidence of rickets as in the North, that is, they show the highest incidence in March. Last year I stated before this society that 50 per cent. of the children in New York, in cases in which the mothers were well fed, showed rickets. This year the investigation was repeated, and it was found that in 33 per cent. of children who were well nourished there were signs of rickets, although the diets of the mothers had been adequate.

DR. CHARLES GILMORE KERLEY, New York: Many badly nourished babies are brought to me with rickets from too prolonged breast feeding. Babies that have been nursed too long, in addition to bone changes, show secondary anemia, a weakened muscular condition and a nervous instability. I would rather have a child in good condition on cow's milk than anemic on breast milk.

DR. HENRY HEIMAN, New York: We give orange juice as early as the fourth week after birth, beginning with one drop and gradually increasing the quantity. In that way we probably prevent scurvy and rickets.

Hydrochloric Acid Milk in Infant Feeding

DR. HAROLD K. FABER, San Francisco: Within comparatively recent times the use of sour milk for infant feeding has become increasingly popular. There are, however, certain objections to its use which have prevented its general employment for healthy and often for sick infants. Protein milk is difficult of preparation; bacterial lactic acid milk is so acid that often infants refuse it altogether; it is variable in its composition and does not readily lend itself to flexible modification, particularly of its acid and buffer value. In order to overcome these disadvantages, the attempt has been made to modify the reaction and buffer value of cow's milk for purposes of infant feeding by using tenth normal hydrochloric acid (approximately 0.4 per cent.). On the assumption that the ideal buffer value as a formula should approximate that of breast milk, 1 part of tenth normal acid is added to 4 parts of milk, making a so-called 25 per cent. hydrochloric acid milk. The titration curve shows that while the buffer value is not the same as that of breast milk throughout, about the same amounts of acid must be poured out for both by the stomach in order to bring the food to the assumed threshold of acidity for gastric digestion, p_H 5.0. Clinically, this percentage of hydrochloric acid to milk has appeared to give the best results for general use. In preparing the formula, the acid is added last in the cold, while stirring with a glass rod. It should not be warmed above 100 F., or it will sometimes precipitate. It can readily be prepared in the home, since small mistakes in measuring the acid, which is very dilute, are of little consequence. The amount of acid is always calculated from the amount of milk, not from the total formula volume. Whole top milk is used. The reaction of 25 per cent. hydrochloric acid milk (p_H 6.0) is less than that of protein milk (about p_H 5.5) and much less than that of bacterially soured milk (about p_H 4.5). The addition of hydrochloric acid to milk inhibits the growth of bacteria somewhat, so that its keeping properties are increased to some extent. The indications are that hydrochloric acid milk affects favorably the tolerance for fats, even when they have previously been ill borne. Constipation has been exceptional in infants on this milk, and consistently good gain in weight has been the rule. We do not give this milk to infants under 6 weeks of age. This method has the advantage of giving a milk of known and easily controlled acidity which readily lends itself to flexible modification.

DISCUSSION

DR. DAVID MURRAY COWIE, Ann Arbor, Mich.: For many reasons milk acidified with lactic acid seems much better and safer than hydrochloric acid milk.

DR. W. MCKIM MARRIOTT, St. Louis: In our experience, the optimum reaction of cow's milk at the time it is fed to the infant should be from p_H 4.0 to 4.4. When such a degree of acidity is obtained, the milk will, in the infant's stomach at the height of digestion, attain the value closely approximating that of breast milk. The amount of hydrochloric acid which Dr. Faber adds is not sufficient to bring the milk to this optimum degree. His results show, however, that the action of hydrochloric acid is of value even if this degree of acidity is not reached. In order to attain the optimum, it is necessary to use approximately 60 c.c. of tenth normal hydrochloric acid per hundred cubic centimeters of milk, and this is an excessive amount of acid for the infant's stomach to care for, as the quantity added to a day's feeding would just about double the total acid content of the body which must be cared for by the acid-base regulating mechanism. Hydrochloric acid is not burned in the body; it must be neutralized and excreted. Organic acids have an advantage over hydrochloric acid in that they may be completely burned to water and carbon dioxid and in that way throw no strain on the organism. We have found lactic acid to be as effective in digestive processes as is hydrochloric acid and to have the advantage that it can be added in larger amounts. The amount we have used has been an equivalent of 8 c.c. of lactic acid U. S. P. per thousand cubic centimeters of milk (1 dram to the pint). This is added drop by drop, with stirring, to milk which has previously been boiled and then cooled. Such milk may safely be given undiluted to even premature infants.

DR. HAROLD F. FABER, San Francisco: It is not necessary to bring the acidity of the milk to the exact digestive optimum, but simply to add enough acid to lighten the secretory burden of the stomach to a point where it is not excessively difficult for the stomach itself to bring the food to the optimum p_H. I did not mean that p_H 5.0 was the optimum gastric acidity, but it may be regarded as the threshold of acidity for the beginning of digestion. In the earlier cases we used tenth normal acid up to 45 per cent. without unfavorable effects, but in one or two instances, the desired results were not obtained.

An Improved Protein Milk in the Diarrhea of Infants

DRS. CHARLES GILMORE KERLEY and HOWARD REID, New York: While the use of protein milk has been of much service as a diet for infants with diarrhea, it has failed in many instances, particularly in the very young and delicate whose need of nourishment is the greatest. For several years past we have been feeding malnourished infants most satisfactorily with evaporated milk specially put up. This prescription has customarily been employed in the type of case which is usually given a dried milk or a butter-flour mixture. The butter flour failed absolutely in the malnutrition cases with diarrhea, no matter how the fat and sugar content was manipulated. Hence, a new method had to be devised for this type of cases. In the preparation of the milk, one quart of skimmed milk is boiled for one hour, cooled to 90 F., and divided into two parts. To one part, one-half tube of *Bacillus acidi-lactici* is added, while to the other part is added one-half tube of *B. bulgarici*. Both portions are incubated for eight hours at a temperature of 80 F., then shaken well, cooled and kept on ice. One-half tube is sufficient to inoculate one pint of starter which will be enough for twenty quarts of lactic acid. To prepare the protein milk, one teaspoonful of each culture is added to one pint of evaporated milk and incubated for four hours or to the degree of acidity required. Usually a two hours' incubation is all that is necessary. As a result of the shorter period of incubation, the mixture is more palatable, less acid, and is rarely refused or vomited. A printed slip is placed on every package stating that the bottles containing the food are to be kept immersed in ice; this prevents a further growth of the culture. In none of forty-seven cases so treated did the diarrhea fail to clear up. It is not claimed that the scheme presented is a method of infant feeding; it is a means of temporary feeding for sickly, delicate infants, by which it is possible to give a higher caloric, well balanced ration which the patient is able to utilize.

A Pediatrician's View of the Food Hormone Doctrine

DR. E. W. SAUNDERS, St. Louis: Of the various designations given to those principles known only by their effect on the human economy, the most appropriate would seem to be that of "Lusk food hormone." I would suggest the possibility of using a positive instead of a negative nomenclature, such as: Food Hormones: I. Osteotrophic; kevatotrophic. II. Orexins, (*a*) neurotrophic, (*b*) microbiotrophic. III. Hematotrophic. In other words, there seems to be ascribed to each vitamin the rôle of presiding over the nutrition of a certain kind of tissue. Again, it may be questioned whether it is correct to speak of the neural avitaminosis as a neuritis. Only those children who are so happy as to be in vital touch with a pediatrician are secure from the ravages of an avitaminosis. The traffic in "devitalized" baby foods continues unabated. Diseases of malnutrition are greatly on the increase. In 1907, a commission empowered to investigate this evil issued a report in which it was reiterated that "fats and green vegetables are sufficient to balance the decorticated rice in the diet." This fallacy continues to be published in almost every book on the subject of nutrition. For experimental animals this statement might hold true, but for the average human being it will not. A vitamin-rich diet, a balanced ration, can practically be constructed only out of natural foodstuffs. The vast superiority of yellow cornmeal over white cornmeal has been a matter of common knowledge for some time, but so far only pigs and cattle have profited by it. Every patent food for babies and all food packages of interstate commerce should be branded with their caloric and their vitamin content.

A Study of Three Hundred Cases of Pertussis

DRS. CHARLES HERRMAN and THOMAS BELL, New York: Females are more frequently affected with pertussis than males. Eighty per cent. of these cases occur in children under 5 years of age, during the summer months when other communicable diseases are at their lowest point. There are cases of pseudopertussis. The term pertussis should be restricted to an acute infectious and communicable disease caused by the Bordet-Gengou bacillus. Pertussis is most communicable in the catarrhal stage; it is usually not communicable after the fourth week. The respiratory complications are the most important; they were present in 58 per cent. of the series; 14 per cent. had a complicating bronchopneumonia. There is no conclusive evidence that pertussis is an important factor in the causation of pulmonary tuberculosis. A positive Pirquet reaction does not become negative during the course of pertussis. The principal aids in the diagnosis of pertussis are the presence of a relative and absolute lymphocytosis in the blood; the presence of the Bordet-Gengou bacillus in the sputum, and a positive reaction to the complement fixation test. The cutaneous tests have not proved of any value. In a series of 297 cases of pertussis, 90 per cent. of the deaths were due to a complicating pneumonia. The mortality in these patients who had pneumonia was 18 per cent.; the mortality of those who had pertussis and measles was 30 per cent. Patients with pertussis should be kept in bed, and, if possible, in the open air. Meteorologic conditions seem to have an effect on the paroxysms, for patients may show changes in the frequency and the severity of the cough from day to day, irrespective of treatment. In the control of the cough, antipyrin fortified by bromids has given the best results. We have not obtained favorable effects from injections of ether or from vaccination. Pertussis vaccine has a specific effect in about one fourth of the cases. When a case of pertussis occurs in an institution for infants and children, it might be worth while to prepare an autogenous vaccine from the first case, to be used for immunizing and therapeutic purposes in the other children. We shall not be able to control the spread of pertussis, or to reduce the great mortality under 2 years of age, until we have a method of immunizing infants against the disease.

DISCUSSION

DR. HENRY DWIGHT CHAPIN, New York: If a child is perfectly well between paroxysms, I would not think of putting him to bed, because the child gets better fresh air

by going out, especially if he lives in the average tenement. In the acute stage of the disease, it may be well to be a little cautious, but when that is past, the child is better if he is up and about.

DR. ROWLAND GODFREY FREEMAN, New York: Some years ago I made a study of the relation of the incidence of contagious diseases to the school year. There are few contagious diseases in the fall, but they gradually increase toward spring, with the exception of whooping cough, which is very regular throughout the year.

DR. HAROLD K. FABER, San Francisco: We have treated twenty-five or thirty cases of whooping cough with the roentgen rays. In four or five cases, there was a very striking and immediate improvement in the cough and diminution in the severity of the paroxysms.

DR. JULIUS H. HESS, Chicago: We have treated about twenty cases of whooping cough with the roentgen rays, and have had results such as Dr. Faber has described. I think that we have better results with roentgen rays than with any other form of treatment. Sometimes there is an improvement after one exposure. The results are better if the roentgen rays are not used until the child is in the paroxysmal stage, so as not to interfere with the production of immunity.

DR. ALFRED FRIEDLANDER, Cincinnati: The improvement following the use of the roentgen rays in whooping cough is related to lymphocytosis, and this has a relation to the bronchial lymph nodes, because the lymphocytosis disappears after the use of the roentgen rays; this seems to be due to the action of the roentgen rays on the lymph nodes.

DR. E. W. SAUNDERS, St. Louis: The use of pertussis vaccines has been very disappointing at times, and again the results have been very good. The immunity conferred by the vaccines does not last a year. The introduction of an O'Dwyer tube and its withdrawal has a desensitizing effect. The French use this procedure and after intubation the child no longer has severe paroxysms. In every case of whooping cough, whether the adenoids have been operated on or not, it is important to clear out the epipharynx. This shortens the course of the pertussis.

Bile Pigments and Bile Salts in the Duodenal Juice of Children

DRS. ROOD TAYLOR, MILDRED B. ZEIGLER and A. E. GORDEAU, Minneapolis: It may be considered as proved that increased amounts of urobilin or urobiligen in the stools, the urine or the duodenal juice, are significant either of increased blood destruction or of hepatic disease. Twenty-seven duodenal juices from twelve subjects were analyzed. Five specimens were normal, three had varying degrees of malnutrition, one had otitis media, one had rickets, and two had celiac disease. Wide variations in the total bile salts were found, ranging from 18 mg. in a healthy infant of 3 months to 550 mg. in a 2 year old boy with celiac disease. In summarizing the results, it may be stated that the duodenal juice of infants contains a varying concentration of bile salts—from 0.2 per cent. to 5 per cent.; that there is a fluctuating but decided preponderance of glycocholic acid and that the content of bile salts in the duodenal juice is not influenced by celiac disease, nor by the administration of cod liver oil.

Chronic Ulcerative Colitis in Childhood

DR. HENRY F. HELMHOLZ, Rochester, Minn.: Five cases, although different in their mode of onset, when fully developed appeared to be the same. The chronic recurrent dysentery with watery, bloody passages, marked emaciation, persistence of the symptoms in spite of treatment, and the absence of any known etiologic factor, such as *Bacillus dysenteriae*, ameba, *Balantidium coli* or tuberculosis, made a definite clinical entity. Whenever a specific cause can be demonstrated, the condition is usually not considered chronic ulcerative colitis. The ulceration usually begins in the lower portion of the bowel, and in the course of the illness the entire colon is involved; only rarely is the ileum involved. On proctoscopic examination, the ulcers are usually most marked in the rectum and lower sigmoid; in the early cases they are less numerous in the sigmoid. The colon is usually thickened, the surface appearing red, glazed, and with numerous small ulcers. In the severe cases, only small islands of mucosa are left, the entire surface being ulcerated and presenting a granular appearance. The roentgenogram is characterized by marked narrowing and absence of haustrations in the full extent of the involved colon. The stools, usually from five to ten in number, contain considerable mucopus and blood, frequently in clots. Large hemorrhages occur only occasionally in adults, but seem to be more frequent in childhood. If there is no complication, the patients are usually free from fever. Perirectal inflammatory conditions are, as a rule, of very serious prognostic significance. Aphthous ulcers in the mouth are frequently associated in the severe cases. There is a persistence of dysentery in spite of all medical treatment, and absence of any of the usual etiologic factors. Under medical treatment the prognosis is bad. Four of the patients in this series were subjected to operation. In two cases a colostomy was done, in the third an appendectomy and in the fourth an ileostomy (Brown operation) was performed, by means of which the lower bowel could be irrigated constantly with saline solution, and with double opening of the ileostomy no feces reached the colon. Two of the patients are practically well; the other two did not improve in spite of the operation. In cases of this kind, medical treatment, consisting of saline irrigations and large doses of bismuth by mouth, should be tried. If the patient does not improve in the course of six weeks or two months, it is advisable to operate. The Brown operation is unquestionably the operation of choice. It is wise to let considerable time elapse before closing the ileostomy opening. One patient in this series recovered under medical treatment.

Operation of a Breast Milk Dairy

DR. HENRY DWIGHT CHAPIN, New York: This paper will be published in full in THE JOURNAL.

Hereditary Neurosyphilis

DRS. PHILIP C. JEANS and SIDNEY I. SCHWAB, St. Louis: We have examined the cerebrospinal fluid from 470 patients with neurosyphilis. With two exceptions, all gave positive Wassermann reactions. Of the 470 children, 206 were under 2 years of age and 264 were over 2 years of age. Of those under 2 years of age, the cerebrospinal fluid Wassermann was positive in fifty-six, and eighteen of these showed some clinical manifestation of their central nervous system infection, while thirty-eight were considered as having latent nervous system infection. Of the children over 2 years of age, fifty-four had positive cerebrospinal fluids; of these thirteen had a clinically latent nervous system infection, nine others were latent, except for pupillary changes, while thirty-two had more or less marked manifestations of a central nervous system infection. The conclusion from this study is that from one fifth to one fourth of all syphilitic children show laboratory evidence of nervous system involvement. Pupillary changes were the most frequent of all the nervous manifestations in the older group of children; they occurred in at least 64 per cent. of the older children in this series; similar changes were found rather commonly in the infant group.

A Case of Megacolon

DR. H. M. MCCLANAHAN, Omaha: A child, aged 2 years, came with a history of extreme constipation since birth. The treatment for one year without a single intermission consisted in a daily dose of a teaspoonful of a mixture of equal parts of aromatic cascara and fluidextract of senna. During the last year and a half the child had taken this combination every other night. Each evening an enema of 2 ounces of olive oil was given. Each morning a soapsuds enema was administered from a pint to a quart. This enema was siphoned off by means of a catheter, usually with a fair bowel movement. During the past year the mother had given massage after the enema. During the past three months it had no longer been necessary to use the catheter. The child is now normal for his age and presents a picture of general well-being.

Scorbutus with Exophthalmos

DR. PERCIVAL J. EATON, Pittsburgh: A child, aged 11 months, ill for the first time, exhibited a peculiar bulging of the eyes, and there were hemorrhagic spots in the lids and orbital region. The typical symptoms of scurvy were present, and, under the usual treatment for scurvy, they disappeared rapidly. The hemorrhages about the orbit were gradually absorbed, but it soon became evident that the child's vision was below normal. Ophthalmologic examination showed increased tension of both globes, with evidences of glaucoma, and vision was probably nil. This condition was doubtless caused by hemorrhages which pushed the eyeballs forward. In time the pupils which had been unequal became constantly equal. The child was taken from the hospital in good condition. It is probable that some other abnormality was present, associated with a subnormal mental condition, perhaps an endocrine imbalance.

Study of Acute Anemias in Infancy

DRS. WILLIAM PALMER LUCAS and HAL HOOBLER, San Francisco: The acute anemias which we have studied we have placed in four groups according to the method of their production: (1) mechanical loss of blood; (2) hemoglobin deficiency; (3) destruction of bone marrow; (4) bone marrow and blood stream complex. In the first group, the predominating picture is that of regeneration. Evidence of regeneration begins as early as fifteen minutes after a hemorrhage. The second group is a very large one, found commonly in premature infants, in twins, and in infants of anemic mothers who have had an acute infection during the last few months of pregnancy. The evidences of regeneration are slight, and there is little or no evidence that degenerative processes are going on. In the third group, the blood picture shows that processes of destruction are going on more rapidly than those of regeneration. The bone marrow in these cases shows a partial, or in severe cases, a complete replacement by a yellow, fatty, gelatinous substance (idiopathic aplastic anemia). The fourth group is that in which the blood picture and bone marrow give a complex picture of blood destruction, with definite signs of degeneration and regeneration. If the blood picture is followed carefully, it will give a good estimate of how the process is progressing, of how treatment should be carried on and of prognosis. In these cases, transfusions are of more value than any other type of treatment, except when there is direct blood stream infection. They are of more benefit if given at a time when signs of destruction or beginning hypoplasia or defective functioning of the bone marrow are evident. We have not found transfusion of much value during the period of hyperactivity of the bone marrow. In all cases in which transfusions have been used, we have given small amounts, from 30 to 60 c.c., at short intervals. We believe this is of more value than the usual large transfusions given at longer intervals. Since adopting the method of small, repeated transfusions, our results have been correspondingly better, especially in cases of the second and third groups. Except in cases of the first group, there is no necessity for bringing the blood up to volume.

Kidney Function in Acute Disease

DRS. HERBERT B. WILCOX and JOHN D. LYTLE, New York: In some textbooks no mention is made of kidney function in the treatment of acute infections. Others state that evidences of serious renal impairment are rarely found in early life. This study makes it clear that in many cases of acute infection there is definite impairment of kidney function which may not be evident clinically. Certain of these cases may go on to actual nephritis. It is, therefore, necessary that kidney function, no less than digestive function, should receive attention in the management of all morbid conditions.

The Manner of the Therapeutic Action in Tetany of Substances Producing Hydrochloric Acid

DR. JAMES L. GAMBLE, Boston: The therapeutic efficacy in tetany of hydrochloric acid and of ammonium chlorid has recently been demonstrated. The usual agent, calcium chlorid, is metabolized to a large extent as hydrochloric acid because of the much greater absorption of chlorin than of calcium from the gastro-intestinal tract. Ammonium chlorid, after absorption, is, in effect, hydrochloric acid, owing to the fact that ammonia is conveyed in the body fluids as urea. Thus, all these substances produce an increase in the metabolism of hydrochloric acid. This increase, following usual doses, is of an extent sufficient to markedly reduce the bicarbonate and appreciably increase the hydrogen-ion concentration of the plasma. Both these alterations favor the ionization of calcium. The extent to which the calcium of the plasma is ionized measures its control of neuromuscular irritability. A therapeutic action may, therefore, be assigned to the "acid effect" of these substances as well as to the absolute increase in the calcium of the plasma, usually effected in the case of calcium chlorid and hydrochloric acid. It is obvious that these hydrochloric acid producing substances produce only a temporary therapeutic action.

DISCUSSION

DR. JOHN HOWLAND, Baltimore: There is clinical evidence for the belief that there may be differences in the ionization of calcium in the various forms of tetany. For instance, in some cases of tetany there is no reduction of the calcium and yet there is a marked increase in the bicarbonate of the plasma. In the nephritis of adults, there is often a reduction of the total calcium to a point as low as in infantile tetany, and yet there are no symptoms of tetany. This is the case when there are evidences of acidosis. It is likely that under such conditions the ionization of the calcium is actually increased. Unless there are differences in the ionization of the calcium, it is difficult always to bring this substance into relationship with the different forms of tetany.

Hypothyroidism: Studies of the Metabolism and Growth, and Effect of Thyroid Treatment

DR. FRITZ B. TALBOT, Boston: When I began this investigation, I found that there were no normal figures that could be used for comparison, so I undertook to get normal figures, using the Dubois method for ascertaining linear and surface measurements, and making observations on 250 normal children. Curves were made for different measurements of normal children, from the same group of children whose basal metabolism was used in making normal standards. Measurements were then made on a series of cretins. It was found that the trend as regards the height of cretins was decidedly low. The sitting height of cretins was definitely lower than the curve for normal children. In cretins the length of the leg from the pubic bone to the sole of the foot showed the greatest divergence from that of normal children. This substantiates clinical observations. The length of the arm from the acromion to the tip of the second finger was likewise much shorter than in normal children, again substantiating clinical observations. The circumference of the head of cretins seemed to be large in comparison with that of normal children, but the actual measurements showed that the circumference of the head in cretins is within normal limits. The difference noted in textbooks is only an apparent one and not a real one. It was a surprise to find that the circumference of the chest in young cretins was below rather than above the average for normal children. However, it was not very far from normal. The circumference of the abdomen, again, did not show as much difference as one would expect, but tends to be above rather than below normal. The foot of the cretin is short as compared with the normal average, and there is also a slight difference in the hand as compared with the normal average. As the result of previous work with hypothyroidism in children, the conclusion has been reached that the maximum dose of thyroid is that which will bring the basal metabolism up to the basal metabolism of a normal child of the same age. We give this dose and use the basal metabolism curves as the therapeutic measure of the effect of the gland extract. When the basal metabolism has been kept at the point which has been shown to be normal for the age of the child, the actual curve of growth will approximate the expected curve. There is suggestive evidence that the greatest stimulus to growth does not come until the basal metabolism is up to the expected total for the age.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

3: 211-356 (May) 1923

Mortality of Early Infancy. L. I. Dublin, New York.—p. 211.
*Suggested New Method for Disinfection of Hides and Skins for Anthrax. H. F. Smyth and E. F. Pike.—p. 224.
*Outbreak of Food Poisoning Traced to Consumption of Egg Salad. C. E. A. Winslow, I. V. Hiscock, O. F. Rogers and E. S. Robinson. —p. 238.
*Growth of Influenza Bacillus. S. R. Damon.—p. 247.
Balantidium from Brazilian Monkey, Cebus Variegatus, E. Geoffr., with Special Reference to Chromosome-Like Bodies in Macronuclei. R. W. Hegner, and F. O. Holmes.—p. 252.
Male Genitalia of Some American Anopheles Mosquitoes. F. M. Root. —p. 264.
Investigations on Control of Hookworm Disease. XIX. Observations on Completion of Second Ecdysis of Necator Americanus. D. L. Augustine.—p. 280.
Effect of Gambusia Affinis on Bacillus Coli Index of Pollution of Water. L. C. Havens and S. A. Dehler.—p. 296.
Experimental Sensitization of Guinea-Pigs to Rebreathed Air. H. Sewall and H. Gutstein.—p. 300.
Investigations on Control of Hookworm Disease. XX. Human Infestation Studies in Porto Rico by Egg Counting Method. G. C. Payne, W. W. Cort, and W. A. Riley.—p. 315.

Iodin Disinfection of Hides Against Anthrax.—The results of the studies described by Smyth and Pike prove (1) the absolute efficacy of iodin as a disinfectant for anthrax; (2) the possibility of the use of iodin in the tanning industry, without the slightest injury to the hides; and indicate two general methods of application, (1) vapor disinfection, (2) (*a*) wet disinfection employing water as a solvent; (*b*) wet disinfection employing an easily volatile solvent, as carbon tetrachlorid or a gasoline-carbon tetrachlorid mixture.

Food Poisoning Traced to Egg Salad.—The outbreak analyzed by Winslow et al., ultimately included fifty-one cases. The symptoms were typical of an acute gastro-intestinal intoxication, namely, headache, abdominal pain, rise of temperature and usually diarrhea. The abdominal pain was griping and severe in eight cases. An equal number of patients suffered from chills and nausea. Two men reported dizziness and two fainted. Muscular weakness and prostration were marked in several instances and loss of weight was noted. In most cases the attack was over in three or four days, although a few of the men were sick in bed for nearly a week with persistent prostration. No fatalities resulted. Of eighteen stools, nine revealed an organism of the paratyphoid B group. Cultural studies, agglutination and complement fixation tests, identified *Bacterium paratyphosum* B.

Growth of Influenza Bacillus.—In Damon's experience it has not been found possible to grow the influenza bacillus on heat killed emulsions or water extracts of mucoid organisms —Friedländer's bacillus and *B. pfeifferi*—or of *B. proteus;* nor has it been demonstrated that an egg medium containing the bodies of *B. phlei* would support continued growth of *B. influenzae.* Damon says that the inclusion of substances found in bacterial cultures that apparently stimulate growth of other micro-organisms, in the class of the so-called vitamins is unjustified. To claim that a growth-stimulating substance found in certain cultures or aerobic soil organisms is a member of the class of vitamins, would seem to be pure assertion.

American Journal of Roentgenology and Radium Therapy, New York

10: 343-418 (May) 1923

Cardiac Pneumofibrosis. G. W. Holmes and D. S. Dunn, Boston.—p. 343.
Study of Lobar Pneumonia and Its Pulmonary Complications by Serial Roentgenographic Examination. L. R. Sante, St. Louis.—p. 351.
Prognosis in Tuberculosis of Lungs from Examination by Roentgen-Rays. A. H. Pirie, Montreal, Can.—p. 366.
Enteroliths. W. W. Boardman, San Francisco.—p. 369.
Roentgen-Ray Therapy of Acute Infections of Antrum and Frontal Sinus. J. D. Osmond, Cleveland.—p. 374.
Roentgen-Ray Therapy of Tinnitus Aurium. L. C. Kinney, San Diego, Calif.—p. 378.
Value of Roentgen-Ray Study of Mastoid Disease in Children Under Five. W. A. Evans, Detroit.—p. 382.
Review of Treatment of Hyperthyroidism by All Methods; Summary of Authors' Experience with Roentgen-Ray Therapy. T. A. Groover, A. C. Christie and E. A. Merritt.—p. 385.
Protective Factors in Modern Highline Roentgen-Ray Work. A. Soiland, Los Angeles.—p. 394.
Bacteriology of Irradiated Tonsils. H. J. Ullmann and F. R. Nuzum, Santa Barbara, Calif.—p. 396.
Measurement of Dosage by Means of Ionization Chambers. W. Duane, Boston.—p. 399.
Isodose Charts. O. Glasser, Baltimore.—p. 405.
Immediate Effect of Radium and Roentgen Rays on Enzyme Action. S. C. Roth and J. J. Morton, New Haven, Conn.—p. 407.

American Review of Tuberculosis, Baltimore

7: 141-214 (May) 1923

Reticulum of Lung. I. Its Relation to Early Tuberculous Processes. W. S. Miller, Madison, Wis.—p. 141.
*Studies on Respiratory Organs in Health and Disease. VIII. Method for Quickly Obtaining Percentage of Individual's Theoretical Normal Vital Capacity of Lungs. J. A. Myers, Minneapolis.—p. 161.
*Diagnosis of Doubtful Cases of Tuberculosis by Examination of Bile Obtained Through Duodenal Tube. H. Freed and L. T. Black, Denver.—p. 174.
Differential Diagnosis of Tuberculosis Versus Hyperthyroidism. W. R. Vis, Grand Rapids, Mich.—p. 186.
*Alkali Reserve in Tuberculosis. H. C. Sweany, Chicago.—p. 193.
*Roentgen Ray in Diagnosis of Pulmonary Tuberculosis. H. L. Barnes, Wallum Lake, R. I.—p. 202.
Subsequent History of Children Discharged from Tuberculosis Sanatoriums. A. T. Laird, Nopeming, Minn.—p. 207.

Measuring Normal Vital Capacity.—Myers presents tables and graphic charts from which he says one may quickly obtain the percentage of an individual's theoretical normal vital capacity when only a few simple measurements are known. No mathematical calculations are necessary.

Diagnosing Tuberculosis by Examination of Bile.—In questionable or doubtful cases of pulmonary tuberculosis, in which routine sputum smears have failed persistently to reveal tubercle bacilli, it is recommended by Freed and Black that guinea-pig inoculation be resorted to, using for this purpose sputum and gastric and duodenal contents and bile obtained by means of the duodenal tube and a duodenal douche of magnesium sulphate solution (Meltzer and Lyon). In a series of twelve such cases in adults there were two in which the bile alone was capable of infecting guinea-pigs, while the sputum and gastric and duodenal contents were negative. In the case of seven children in an orphanage, exposed to two fatal cases of severe pulmonary tuberculosis, tubercle bacilli were found in the bile of one of the contacts by this method, thus clarifying and corroborating the clinical and roentgenological findings in these cases. Where the possibility of milk contamination exists this should be guarded against by testing the strain of bacillus found, preferably by rabbit inoculation.

Alkali Reserve in Tuberculosis.—The plasma bicarbonate determination of Van Slyke was performed by Sweany on 262 specimens of plasma from adults having uncomplicated tuberculosis and on 126 specimens of plasma from children. Although the results may be considered negative as far as proving that tuberculosis is accompanied by an "acidosis," yet, Sweany says, there is an indication that the general average of tuberculosis patients have a slight tendency in that direction, and that the careful administration of alkalis, either in the form of food or drugs, will remove one barrier, though slight, from the way of the convalescent patient. Too much protein, therefore, from which amino and other acids are derived would be contraindicated. The administration of acetates, citrates or sodium bicarbonate would be beneficial. A diet with the maximum amount of vegetables and with a limited amount of meats would be preferable to a heavy meat diet.

Value of Roentgen Ray in Diagnosis of Pulmonary Tuberculosis.—A comparison is made by Barnes of roentgen-ray and physical signs in 1,000 cases of pulmonary tuberculosis. Of 592 positive sputum films only five were read as negative to the roentgen-ray and rereading of the films showed that four of the five had slight changes at the apex. Of 592 positive sputum cases, roentgen-ray evidence of involvement of the second apex, unrevealed by physical examination, was

shown in 6 per cent. Of 592 positive sputum cases, in 380, or 64 per cent., the roentgen-ray evidence of disease was more extensive than the physical signs; in thirty-six, or 6 per cent., the physical signs were more extensive; and in 176, or 30 per cent., the amount of lung involvement was about the same as indicated by the two methods. Of 310 apexes of negative sputum patients, in which dulness or moist râles had not been found, 40 per cent. showed abnormal roentgen-ray densities. Of 728 apexes of negative sputum patients, showing dulness or moist râles, 36 per cent. were negative to the roentgen ray. In negative sputum patients both dulness and râles were found in 40 per cent., of the apexes showing specks, 39 per cent. of apices showing streaks and 30 per cent. of apexes showing haziness.

Archives of Internal Medicine, Chicago

31: 623-782 (May) 1923

*Value of Phenoltetrachlorphthalein in Estimating Liver Function. G. M. Piersol and H. L. Bockus, Philadelphia.—p. 623.
*Heart in Diphtheria: A Clinical and Pathologic Study. M. Loth, New Haven, Conn.—p. 637.
*Production of Atherosclerosis in Rabbits by Feeding Diets Rich in Meat. L. H. Newburgh and S. Clarkson, Ann Arbor, Mich.—p. 653.
*Presence of Auer Bodies in Leukemic Tissues. M. N. Richter, New York.—p. 677.
*Effect of Splenectomy on Hemopoietic System of Macacus Rhesus. E. B. Krumbhaar and J. H. Musser, Jr., Philadelphia.—p. 686.
*Thoracoplastic Compression of Lung in Pulmonary Tuberculosis. P. K. Brown and L. Elcesser, San Francisco.—p. 701.
*Quantitative Studies in Syphilis from Clinical and Biologic Point of View: II. Normal Arsenic. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 739.
*Uricacidemia: Based on Study of 1,500 Blood Chemical Analyses. H. M. Feinblatt, Brooklyn.—p. 758.
*Accurate Criteria for Differentiating Anemias. R. L. Haden, Kansas City, Kan.—p. 766.

Value of Phenoltetrachlorphthalein in Estimating Liver Function.—Piersol and Bockus present a technic in detail which it is believed will yield information of decided value concerning the functional competence of the liver. In a series of fifty cases, it was found that, in a general way, a delay in the appearance time of the dye was proportionate to a decrease in the output. The estimation of the dye output in two hours is of more importance than recording the appearance time, but we believe both should be considered. In grossly pathologic livers the appearance time of the maximum color was twice as long as that in normal cases (23.2 minutes as compared to 11.6 minutes) and the dye output averaged but one eighth of the output in normal cases (2.71 mg. as contrasted with 22.4 mg.).

Heart in Diphtheria.—The human material studied by Loth was obtained from cases occurring in the New Haven Hospital from 1917 to 1922, inclusive. During these years there were approximately 425 cases of diphtheria in the hospital. Of the total number, sixty-five patients, or 15 per cent., died. Of the sixty-five fatalities, nineteen, or 29 per cent., came to necropsy, and it is from these that the data described were obtained. The case histories and pathologic sections were critically studied in each case. The diagnosis of myocarditis as a cause of death was made clinically in three cases out of seventeen, while endocarditis as an anatomic diagnosis was made in only two cases. With one exception, the patients were all children. Antitoxin was given in fifteen of the seventeen cases, in amounts varying from 4,000 to 50,000 units, in but a single case given before the day of admission. The physical examination of the heart in these seventeen cases revealed enlargement to percussion in four cases. The heart sounds were reported feeble in four cases. Three instances of arrhythmia were observed, a sinus irregularity not respiratory (in a patient of 42), an atypical gallop rhythm, and a typical gallop rhythm. The gross pathologic finding showed dilatation of the right side of the heart in seven cases. This was marked, however, in only one instance. In sixteen of the seventeen cases a terminal bronchopneumonia was found. In six cases there was a fibrinous pleurisy, and in three, an acute cervical lymphadenitis. The heart was examined histologically in all cases. Very few pathologic changes were found. The analysis of the necropsy findings shows that: (1) in no case was there a definite myocarditis, that is, a true inflammatory lesion; (2) the pathologic findings were more or less cloudy swelling and fat accumulation, and slight increase in the number of interstitial cells, being mostly mononuclears. Clinical evidence indicates that a large proportion of the fatalities in diphtheria are due to circulatory failure. Death in these cases is probably referable to injury to the myocardium itself or its conducting system, although experimental evidence points to a serious disturbance in the peripheral vasomotor system. A definite inflammatory reaction (true myocarditis) is only exceptionally demonstrable at necropsy (one out of nineteen cases in the present series). Fat accumulation and cloudy swelling are very regularly seen, but are not more pronounced than in other acute infectious diseases such as scarlet fever, measles and pneumonia. In other words, no specific myocardial lesion has been demonstrated. The injection of lethal or sublethal doses of diphtheria toxin in guinea-pigs produces degenerative changes in the heart muscle similar to those that are encountered in the human heart in fatal diphtheria, but such injections do not induce a true inflammatory reaction.

Experimental Atherosclerosis Produced by Meat Diet.—Experiments made by Newburgh and Clarkson have shown that the prolonged ingestion of excessive amounts of protein by rabbits will result in extensive atherosclerosis of the aorta and several other arteries. The term atherosclerosis is applied only to primary disease of the intima, characterized by fatty degeneration and hyperplasia of the elastic tissue. Study of sources of error has demonstrated that the atherosclerosis found in the rabbits that ate high protein diets was not spontaneous; was not the effect of laboratory environment, age or infection; could easily be distinguished from the spontaneous calcification of the media; and was not caused by the small amount of cholesterol in the diet.

Auer Bodies in Myelogenous Leukemia.—Auer bodies were demonstrated by Richter in microscopic sections of a case that was probably one of acute myelogenous leukemia. They were found within the cytoplasm of atypical myeloblasts, and, in blood smears, in the immediate vicinity of disintegrated cells. Only once was an Auer body seen in a myelocyte. The Auer bodies are not identical in staining reactions with any of the known normal cell granulations, nor with the hyaline bodies (Russell's fuchsin bodies) which were present in the same sections.

Effect of Splenectomy on Hematopoietic System.—The blood pictures of six monkeys were followed by Krumbhaar and Musser over periods varying from six weeks to two years after splenectomy. The response to a hemolytic agent was noted in four splenectomized monkeys and four controls, and the hematopoietic system of eight monkeys and controls was studied postmortem. In *Macacus rhesus*, splenectomy produces an anemia that is much less marked than in the case of dog or man. The resistance of the erythrocytes is increased throughout the period of observation. The number of reticulated erythrocytes is diminished and no signs of a "blood crisis" are to be found. The total leukocyte count is only slightly increased during the first week, but an absolute and relative increase of polymorphonuclears and decrease of small lymphocytes persists for a longer period. The bone marrow is very little, if at all, hyperplastic at early periods after splenectomy; but by the fifth month, cellular hyperplasia is marked and continues so to the latest period of observation (twenty-seven months). The visceral lymph nodes are more prominent after splenectomy, and phagocytic action is more marked. Hemolymph nodes were not found. Therefore, it appears that the transient postsplenectomy anemia results chiefly, or, perhaps, wholly from lessened blood formation: perhaps, due to the loss with the spleen of a substance which normally stimulates the bone marrow. The persistent increased resistance of the erythrocytes is probably one of the most important results of splenectomy from a therapeutic point of view. The histologic changes in the lymph nodes, bone marrow, and Kupffer cells of the liver of splenectomized animals indicate that these organs take over the spleen's share in disposing of effete erythrocytes and their disintegration products.

Thoracoplastic Compression of Lung in Tuberculosis.—There is but one therapeutic agent in the treatment of tuberculosis that has stood the test of all time, and that is rest. That thoracoplasty is to be regarded as an ideal rest to a part that has reached a point where nothing else can affect the process, follows as a logical conclusion, and as the work has progressed in the hands of Brown and Eloesser, it has become more and more plain to them that when a lung is advanced in disease and pneumothorax is tried, thoracoplasty should follow if for any reason pneumothorax does not put the lung at rest. Operative collapse of a tuberculous lung is indicated in mainly unilateral tuberculosis, when an artificial pneumothorax is indicated but cannot be carried out effectively. Chronic fibrous phthisis, with thick pleural deposits and a rigid chest wall, offers the most frequent indication. Operation should be decided on only after close observation and study of each patient, after repeated consultations with a competent internist, and after attempts at compression by means of pneumothorax have failed. The procedure of choice is (*a*) Sauerbruch's total thoracoplasty or (*b*) partial pneumothorax with partial thoracoplasty. Operation should be performed under local anesthesia. Some of the patients will be cured by operative collapse after other treatment has failed.

Normal Arsenic Content of Urine, Blood, Etc.—As a result of the examination of the blood, urine, hair and milk from about 200 subjects, Fordyce, Rosen and Myers state that arsenic is found "normally" in a large number of persons, depending on the character of food, drink, medication and environment. It is absent in persons on a diet restricted in the amount of sweets, vegetables, meat, etc., and it is present in varying amounts in persons applying remedies containing ingredients contaminated with arsenic to inflamed or ulcerating skin surfaces, and to a greater extent in persons receiving arsenic either by mouth or intravenously or connected with the arsenicals in a preparative way. A complete history of the subject is necessary before arriving at a decision regarding the arsenic content of the urine, blood or even of the organs. In the determination of the amount found "normally" in the body fluids the ideal way would be to hospitalize the subject in order to regulate the nature and amount of food ingested and to check up false statements regarding medication. Consideration of the "normal" arsenic is necessary from a medicolegal point of view. This investigation shows that it may be a normal constituent of the body under the conditions studied and that excessive amounts should always be considered with suspicion in patients who present themselves for examination and medication.

Uricacidemia.—A study made by Feinblatt of 1,500 persons with routine blood chemical analyses showed that the great majority of patients with high blood concentration of uric acid but not of urea nitrogen or creatinin exhibited no evidence at all of early chronic interstitial nephritis. The blood uric acid reading is of no value unless correlated with that of urea nitrogen (or total nonprotein nitrogen). A high concentration may be interpreted as a symptom, along with the other manifestations, but is in no sense diagnostic in itself of early chronic interstitial nephritis or any other condition.

Differentiating Anemias by Hemoglobin Saturation of Red Cells.—A study is presented by Haden of the red cell count, hemoglobin in grams per hundred cubic centimeters, volume index, saturation index, the exact volume and the exact hemoglobin content, and the hemoglobin percentage in the red cells of the blood of fifty-two normal men and women, twenty cases of pernicious anemia, twenty-six cases of hemolytic secondary anemia, and eight cases of hemorrhagic anemia. A new index which expresses the hemoglobin saturation of the red cells as compared with the normal is described. In normal blood the red cells are completely saturated with hemoglobin; hence the index is always 1.00. In the twenty cases of pernicious anemia studied, the average volume index was 1.39, the color index 0.81, and the saturation index 0.87. In the eight cases of hemorrhagic secondary anemia studied, the average volume index was 0.77, the color index 0.62, and the saturation index 0.80.

Archives of Surgery, Chicago

6:661-908 (May) 1923

*Cystic Disease of Bones: Study of Fifteen Cases. A. P. C. Ashhurst, R. S. Bromer and C. Y. White, Philadelphia.—p. 661.
*Artificial Nerve Branches for Innervation of Paralyzed Muscles. B. Stookey, New York.—p. 731.
*Preservation of Facial Nerve in Radical Treatment of Parotid Tumors. A. W. Adson and W. O. Ott, Rochester, Minn.—p. 739.
*Treatment of Brain Abscess by Induction of Protective Adhesions Between Brain Cortex and Dura Before Establishment of Drainage. C. E. Dowman, Atlanta, Ga.—p. 747.
Primary Lymphosarcoma of Prostate. D. Symmers, New York.—p. 755.
*Physiology of Pulmonary Embolism as Disclosed by Quantitative Occlusion of Pulmonary Artery. G. E. Haggart and A. M. Walker, Boston.—p. 764.
*Studies on Calcification of Callus. E. P. Lehman, St. Louis.—p. 784.
Study of Diverticulum Formation in Appendix. A. P. Stout, New York.—p. 793.
Primary Carcinoma of Male Urethra. H. L. Kretschmer, Chicago.—p. 830.
*Pathogenesis of Peptic Ulcer. J. E. Sweet, L. T. Buckman, A. Thomas and E. M. Bell, Philadelphia.—p. 837.
Calcification and Ossification of Meninges. A. E. Halstead and F. Christopher, Chicago.—p. 847.
Twentieth Report of Progress in Orthopedic Surgery. R. B. Osgood, R. Soutter, H. C. Low, M. S. Danforth, H. C. Bucholz, L. T. Brown, M. N. Smith-Petersen and P. D. Wilson, Boston.—p. 858.

Cystic Disease of Bone.—As this paper is virtually a detailed report of cases, an abstract is not possible. The original should be consulted.

Artificial Nerve Branches for Paralyzed Muscle.—When muscular branches are destroyed and nerve suture is impossible, Stookey shows that paralyzed muscle may be innervated by the formation of an artificial nerve branch. When a free nerve transplant is sutured to the nerve trunk and the distal end implanted directly into the muscle, the free nerve transplant serves as a conduction path from the nerve trunk to the muscle. An artificial nerve branch may be made for a muscle from a nerve trunk which normally supplies the muscle; or, if this nerve trunk is totally destroyed, a branch may be made from an adjacent nerve. Thus a muscle may be brought under the domain of a nerve which never supplies it normally; for example, the biceps may be supplied by an artificial branch from the musculocutaneous, or, if the musculocutaneous is destroyed, it may be innervated by an artificial branch from the ulnar or median nerve. Evidence that paralyzed muscles may be neurotized by an artificial nerve branch was shown by electric stimulation of the artificial nerve branch, resulting in a rapid and quick contraction of the muscle, by the normal size and color of the muscle, and by the histologic findings, which revealed normal striations in the muscle fibers. The presence of nerve branches and nerve fibers in the muscle thus innervated is conclusive evidence that neurotization has taken place.

Preservation of Facial Nerve in Operating for Parotid Tumors.—Early diagnosis and early and complete enucleation are advised by Adson and Ott for encapsulated tumors of the parotid gland; but, if metastasis to the gland has occurred, radical removal should be carried out with preservation of the facial nerve. The facial nerve should be sacrificed only if metastasis and necrosis have become so extensive that it is impossible to demonstrate the lines of cleavage.

Treatment of Brain Abscess.—The case reported by Dowman is a typical illustration of what should be expected in most cases of single abscess of the brain, when the abscess can be located with the exploring needle. Large openings into the skull dura with the immediate establishment of free drainage, he believes, are responsible for the majority of poor results in this type of lesion, as the development of meningitis and brain fungus are to be expected under such conditions. If preformed adhesions between the dura and cortex are present, immediate drainage might be effected with safety. Such a condition, however, is rarely encountered, except in cases of abscess following injury caused by some foreign body. If protective adhesions are not already present, they should be induced before free drainage is established. Decompression in cases of brain abscess is particularly to be condemned. As soon as the increased intracranial pressure under such circumstances is relieved by decompression, there is a tendency for the abscess to be dislocated in the direction

of the decompression, thereby promoting further destruction of brain tissue, which should not occur if the abscess is drained through a very small opening in the skull.

Physiology of Pulmonary Embolism.—The experiments cited by Haggart and Walker show clearly that a large part of the pulmonary circuit may be blocked without causing a fatality. There is, however, no direct evidence as to the exact amount of obstruction required. Until from 52 to 66 per cent. of the pulmonary circulation is cut off there is no significant variation in the general circulatory condition of the animal. The point at which failure occurs is sharply defined, since beyond this end-point a circulatory collapse is precipitated by a minute increase in the arterial obstruction, but if this is not applied no untoward change results. The condition brought about in these experiments was analogous to pulmonary embolism in man.

Calcification of Callus.—According to Lehman, exposure to sunlight and the addition of cod liver oil to the diet exert no measurable accelerating influence on the calcification of fracture callus in normal rats. The same factors are equally nonoperative under experimental conditions in which such favorable effects might be expected to be intensified.

Pathogenesis of Peptic Ulcer.—The efforts made by Sweet et al. to produce a peptic ulcer by a chronic functional obstruction with stasis were negative. In the consideration of human ulcer, as regards due influence of age, sex, familial tendency and seasonal recurrence, is pointed out the experimental fact that anaphylaxis in the dog presents an intestinal picture practically identical with that produced by the toxin of high obstruction.

Boston Medical and Surgical Journal

188: 755-788 (May 17) 1923

Operability of Prostatic Obstruction. J. D. Barney, Boston.—p. 755.
Surgery and Diabetes. E. L. Young, Jr., Boston.—p. 767.
Early History of Medical Journalism in New England. R. M. Green, Boston.—p. 769.
Health Examinations. D. B. Armstrong, New York.—p. 772.
Trichinosis; Case Reports. J. Garland, Boston.—p. 773.

Colorado Medicine, Denver

20: 87-116 (April) 1923

Pollen and Hay-Fever. Regional Problem. W. V. Mullin, Colorado Springs.—p. 96.
Nephritis in Children. J. L. Schwer, Pueblo.—p. 100.
Intestinal Obstruction. L. I. Miller, Denver.—p. 106.
Diphtheroid Infection of Nose, Throat and Lungs. E. D. Downing, and C. E. Harris, Woodmen.—p. 111.

Illinois Medical Journal, Oak Park

43: 333-408 (May) 1923

Chronic Indigestion in Childhood. J. L. Morse, Boston.—p. 364.
Syphilitic Stricture of Rectum. W. R. Rainey, St. Louis.—p. 370.
Cystoscopy and General Practitioner. F. F. Hess, Chicago.—p. 372.
Case of Family Doctor. E. O. Laughlin, Paris.—p. 375.
Malignancy Infection Versus Heredity. H. B. Flynn, Chicago.—p. 376.
Urologic Problems and Diagnosis. R. P. Kile, Rockford.—p. 378.
*First Daily Hospital Clinic in America for Private Patients. E. Keating, Chicago.—p. 382.
Follicular Eye Affections in Children. J. W. Dunn, Cairo.—p. 384.
Care of Skin. A. W. Stillians, Chicago.—p. 388.
Carbondale Antimalaria Campaign. A. F. Dappert, Springfield.—p. 393.
*Mesenteric Thrombosis: Report of Case with Recovery. C. M. Johnson, Harvard.—p. 400.
Intestinal Stasis. E. E. Poos, Belleville.—p. 402.

Daily Hospital Clinics on Private Patients.—Keating describes the plan of daily clinics for private patients in operation at a hospital which has no dispensary and is not a teaching hospital for undergraduates. The clinic really furnishes a postgraduate course that serves to keep the attending and visiting physicians in touch with the progress of medicine; makes them more alert to the needs of their patients; arouses them to the necessity of routine and careful examinations; causes them to avail themselves of the opportunity offered by the roentgen-ray and clinical laboratory. It has now been in existence for more than two years and has been held every day during that period with the exceptions of Sundays and holidays. With few exceptions, the physicians who talk at these daily sessions have had no experience as teachers in the medical schools. The patients presented are those in their private practice. From time to time the most eminent teachers in the medical profession appear before the clinic and add much to its value by reason of their greater abilities as teachers. Coincident with the establishment of the clinic, the hospital trustees installed at considerable expense a clinical laboratory, and placed in charge of it a competent and well trained physician who is able to render any service that a clinical laboratory is expected to give. The impetus it has given for careful and elaborate studies in diagnosis have made it possible for the hospital to maintain a clinical and roentgen-ray laboratory that could not be operated without the support of the attending physician.

Mesenteric Thrombosis.—A case of mesenteric venous thrombosis is reported by Johnson, in which recovery ensued. The cause is not definitely known, but lead poisoning may have been a factor. Immediate operation, as soon after the onset as possible, with complete resection of the bowel and mesentery involved, with end to end anastomosis, is the treatment recommended.

Johns Hopkins Hospital Bulletin, Baltimore

34: 141-172 (May) 1923

*Carcinoma of Cervix Uteri. K. H. Martzloff, Baltimore.—p. 141. (To be concluded.)
Quantitative Studies with Arsphenamin. I. Colorimetric Method for Estimation of Arsphenamin in Blood and Tissues. A. C. Kolls and J. B. Youmans, Baltimore.—p. 149.
Clinical Study of Ectopic Pregnancy. L. Brady, Baltimore.—p. 152.
*Antiseptic Action of Some Benzyl Compounds. D. I. Macht and J. H. Hill, Baltimore.—p. 154.
*Blood Picture of Uncomplicated Pellagra. Review of Literature. J. G. Huck, Baltimore.—p. 157.
Instrument for Measuring Distortion Due to Divergence of Roentgen-Rays. E. C. Hill, Baltimore.—p. 164.
Production of Kidney Lesions in Rats by Diets Defective Only in That They Contain Excessive Amounts of Proteins. L. M. Pelvogt, E. V. McCollum and N. Simmonds, Baltimore.—p. 168.

Carcinoma of Cervix Uteri.—The results of a pathologic and clinical study with particular reference to the relative malignancy of the neoplastic process, as indicated by the predominant type of cancer cell, are reported by Martzloff. The object of this study was to discover, if possible, whether in this large and common group of epidermoid or squamous cell carcinoma of the cervix the histomorphology of the predominant types of cancer cells might signify anything relating to the malignancy of the disease. The study is not completed, hence a résumé of findings is deferred.

Antiseptic Action of Benzyl Compounds.—A bacteriologic study of the following substances was made by Macht and Hill: benzyl alcohol, benzaldehyd, benzyl benzoate, benzyl acetate and a number of natural pharmacologic compounds containing benzyl bodies such as benzoin, balsam of Peru, balsam of tolu and a number of others. Benzyl alcohol, even when diluted with oil, exhibits definite antiseptic properties. A dilution of benzyl alcohol, 1:10, was sufficient to kill the organisms after exposure of one minute. Dilutions with oil, 1:100 gave no growth after exposure of the bacteria for five hours. Benzaldehyd in dilution of 1:10 was also germicidal on exposure for one minute and in dilution of 1:100 proved to be even more effective than that of benzyl alcohol, inasmuch as after one hour's exposure only a small number of colonies developed and after three hours there was complete inhibition of growth. Benzyl acetate diluted (1:10) gave no growth after one hour's exposure and a markedly reduced number of organisms even with a dilution of 1:100. Benzyl benzoate undiluted killed all of the organisms after three hours' exposure and showed slight germicidal properties in dilutions of from 1:10. The galenical preparations of benzoin and also balsam of Peru likewise exhibited some antiseptic effect. Tincture of benzoin even in dilution of 1:100 inhibited growth of organisms after an exposure of one hour. Similar properties, though to a lesser degree, were shown by oil of cajuput.

Blood in Pellagra.—The blood in ten cases of pellagra at the height of the illness, of twenty convalescent pellagra patients, and five other cases of pellagra at various stages of the disease, was studied by Huck. He found that the differential blood picture in pellagra varies with the stage of the disease, that is, at the height of the disease there is an

increase in the lymphoid elements of the blood. In the convalescent stage, when the symptoms have cleared up, there is an increase in the polymorphonuclear eosinophils, as high as 10 per cent. Finally, the differential formula becomes normal when the patient has recovered. The hemoglobin and red blood cells show a slight reduction in most cases, and one can expect to find a normal or a slightly low color index. The leukocyte count remains within normal limits and the platelets are usually normal. No nucleated red blood cells and no basophilia are found. The bone marrow cells were not found in any cases. The eosinophilia suggests infection with intestinal parasites, but repeated stool examinations, by various methods, were negative.

Journal of Bacteriology, Baltimore

5: 197-295 (May) 1923

What Constitutes Efficiency in Research. L. A. Rogers, Washington, D. C.—p. 197.
Studies on Salt Action. VIII. Influence of Calcium and Sodium Salts at Various Hydrogen Ion Concentrations on Viability of Bacterium Coli. C. E. A. Winslow and I. S. Falk, New Haven, Conn.—p. 215.
Id. IX. Additive and Antagonistic Effects of Sodium and Calcium Chlorids on Viability of Bacterium Coli. C. E. A. Winslow and I. S. Falk.—p. 237.
Formol Titration of Bacteriologic Mediums. J. H. Brown, Princeton, N. J.—p. 245.
Clostridium Botulinum. IV. Resistance of Spores to Moist Heat. F. W. Tanner and F. D. McCrea, Urbana, Ill.—p. 269.
Fermentation of Arabinose and Xylose by Certain Aerobic Bacteria. E. B. Fred, W. H. Peterson and J. A. Anderson, Madison, Wis.—p. 277.
Relation Between Chemical Composition of Peptones and Hydrogen Sulphid Production by Bacteria. F. W. Tilley, Washington, D. C.—p. 287.

Journal of General Physiology, Baltimore

5: 521-708 (May) 1923

Physical Chemistry of Proteins. II. Relation Between Solubility of Casein and Its Capacity to Combine with Base. Solubility of Casein in Systems Containing Protein and Sodium Hydroxid. E. J. Cohn and J. L. Hendry, Boston.—p. 521.
*Sensory Adaptation and Stationary State. S. Hecht, Boston.—p. 555.
*Photochemical Basis of Animal Heliotropism. J. H. Northrop and J. Loeb, New York.—p. 581.
Homostrophic Reflex and Stereotropism in Diplopoda. W. J. Crozier and A. R. Moore, New Brunswick, Me.—p. 597.
*Stability of Bacterial Suspensions. VI. Influence of Concentration of Suspension on Concentration of Salt Required to Cause Complete Agglutination. J. H. Northrop, New York.—p. 605.
Comparative Studies on Respiration. XXV. Action of Chloroform on Oxidation of Some Organic Acids. G. B. Ray, Cambridge, Mass.—p. 611.
Id. Production of Carbon Dioxid from Organic Acids in Relation to Their Iodin Absorption. G. B. Ray, Cambridge, Mass.—p. 623.
Composition of Cell Sap of Plant in Relation to Absorption of Ions. D. R. Hoagland and A. R. Davis, Berkeley, Calif.—p. 629.
*Effect of Radio-Active Radiations and Roentgen Rays on Enzymes. I. Effect of Radiations from Radium Emanation on Solutions of Trypsin. R. G. Hussey and W. R. Thompson, New York.—p. 647.
Membrane Potentials in Donnan Equilibrium. D. I. Hitchcock, New York.—p. 661.
Valency Rule and Alleged Hofmeister Series in Colloidal Behavior of Proteins. I. Action of Acids. J. Loeb and M. Kunitz, New York.—p. 665.
Id. Influence of Salts. J. Loeb and M. Kunitz, New York.—p. 693.

Sensitivity to Illumination.—Experiments are described by Hecht which measure the sensitivity of animals exposed to continued illumination to which they have become adapted. It is shown that the amount of outside light energy necessary to stimulate an adapted animal increases with the intensity of the adapting illumination.

Nature of Heliotropism.—Experiments on the heliotropic orientation of *Limulus* were made by Northrop and Loeb which confirmed Loeb's photochemical theory of animal heliotropism proposed first in 1888 and 1889 in experiments on insects, and later in experiments on other forms of animals.

Salt Concentration Required to Agglutinate Sensitised Typhoid Bacilli.—The concentrations of various salts required to agglutinate different concentrations of a suspension of typhoid bacilli sensitized with immune serum have been determined by Northrop.

Effect of Irradiation on Enzymes.—Qualitative evidence has been found by Hussey and Thompson which suggests that roentgen rays, gamma rays and beta rays produce identical effects in dilute trypsin solutions.

Journal of Industrial Hygiene, Boston

5: 1-40 (May) 1923

Practical Mental Hygiene in Industry. F. W. Dershimer, Cleveland.—p. 1.
Accidents from Point of View of Workmen's Compensation Act, England. D. A. Coles, London.—p. 8.
Causation of Industrial Accidents. H. M. Vernon, London.—p. 14.
Atmospheric Particulate Matter: 1. Dust. New Apparatus for Determination. P. Drinker, R. M. Thomson and S. M. Fitchet, Boston.—p. 19.

Kentucky Medical Journal, Bowling Green

21: 171-212 (April) 1923

History and Uses of Plaster of Paris. J. Bryan, Lexington.—p. 180.
Form for Periodic Health Examinations. I. Lindenberger, Louisville.—p. 183.
Suggestions to Physicians Holding Child Health Conferences or Seeing Well Children in Their Offices. J. McF. Jennings.—p. 188.
Arthritides. S. J. Meyers, Louisville.—p. 190.
Value of Cystoscope in Diagnosis of Disease in Upper Urinary Tract. C. G. Hoffman, Louisville.—p. 196.
Blastomycosis in Kentucky. S. Graves, Louisville.—p. 199.
Local Anesthetic in Herniotomy. O. Bloch, Louisville.—p. 204.
Practical Hints on Typhoid. W. E. Reynolds.—p. 205.

Maine Medical Association, Portland

13: 217-236 (April) 1923

Cancer Control Problem. E. H. Risley, Waterville.—p. 217.

Michigan State Medical Society Journal, Grand Rapids

22: 227-270 (May) 1923

Acetonemia-Acidosis-Alkalosis. J. P. Parsons, Ann Arbor.—p. 227.
Difficulties in Diagnosis of Right Upper Quadrant Disease with Particular Reference to Gallbladder. C. F. Karshner, Grand Rapids.—p. 232.
Pathology, Diagnosis and Treatment of Acute Mastoiditis. A. R. McKinney, Saginaw.—p. 238.
Preparatory Treatment of Patients for Operations on Gastro-Intestinal Tract. O. H. Hart, St. Johns.—p. 242.
Complications of Pregnancy. C. F. Dubois, Alma.—p. 244.
General Management of Pregnancy and Labor. M. C. Hubbard, Vestaburg.—p. 247.

Porto Rico Medical Association Bulletin, San Juan

17: 77-108 (May) 1923

*Medical Inspection of Children in Porto Rico. A. Fernós Isern.—p. 77.
Microchemical Study of Blood. R. del Valle Sárraga.—p. 87. Cont'n.
Neurosyphilis. Mario Julia.—p. 97.

Medical Inspection of School Children in Porto Rico.—Of 3,000 children inspected in the San Juan district, Fernós Isern states that 64 per cent. were below the standard weight and height for their age. Signs of tuberculosis were found in 1 per cent. Only 12 per cent. seemed free from disease or gross defects of some kind. Inadequate and unsuitable food is evidently responsible for the 64 per cent. below the nutritional standards.

Public Health Journal, Toronto

14: 195-242 (May) 1923

Vitamins from Days of Columbus to Present. F. Royer and J. Lindsay.—p. 195.
Psycho-Analysis; the New Psychology. J. W. Bridges, Toronto.—p. 205.
Early Public Health in Toronto. R. Wilson.—p. 210.
Modern Aspects of Physical Education. G. Barber.—p. 215.
Typhoid Fever at Cochrane. J. W. S. McCullough.—p. 220.

Southwestern Medicine, Phoenix, Ariz.

7: 105-144 (April) 1923

Spinal Cord Tumors. C. W. Rand, Los Angeles.—p. 105.
Extra-uterine Pregnancy; Report of Cases. J. W. Hannett, Gallup, N. M.—p. 120.
Defective Delinquents in Army of Occupation of A. E. F. in Germany. How They Are Treated in Disciplinary School. L. V. Briggs.—p. 131.

South Carolina Medical Association Journal, Greenville

19: 479-506 (May) 1923

Mental Hygiene Public Health Problem. C. F. Williams, Columbia.—p. 482.
Control of Malaria, Medical Profession's Opportunity. C. C. Bass, New Orleans.—p. 487.

Surgery, Gynecology and Obstetrics, Chicago

SG: 589-730 (May) 1923

*Prostatectomy. Preoperative, Operative and Postoperative Treatment. H. H. Young, Baltimore.—p. 589.
*Stoffel Operation for Spastic Paralysis: Report of Twenty-Four Cases. C. H. Heyman, Cleveland.—p. 613.
*Analysis of End Results in Thyroid Surgery. C. A. Porter, Boston.—p. 621.
*Method for Localization of Brain Tumors in Comatose Patients. W. E. Dandy, Baltimore.—p. 641.
*Cranial and Intracranial Endotheliomata. Hemicraniosis. W. G. Penfield, New York.—p. 657.
*Renal Function Following Nephrotomy. J. A. H. Magoun, Jr., Rochester, Minn.—p. 675.
Traumatic Asphyxia; with Especial Reference to Ocular and Visual Disturbances. G. J. Heuer, Cincinnati.—p. 686.
*Preliminary Pneumothorax in Lung Surgery. J. Arce, Buenos Aires, Argentine.—p. 697.
Congenital Hypertrophy: Report of Case with Diffuse Neurofibromatosis. W. C. Campbell, Memphis, Tenn.—p. 699.
*Bilharzial Appendicitis. C. H. Bailey and E. A. Bullard, New York.—p. 704.
*Third Omentum. M. I. Bierman and W. M. Jones, St. Louis.—p. 708.
*Endothermy, Surgical Adjunct in Accessible Malignancy and Precancerous Conditions. G. A. Wyeth, New York.—p. 711.
Technic of Enlarged Pyelotomy for Renal Calculi. D. N. Eisendrath, Chicago.—p. 715.
Apron Used in Performing Bowel and Stomach Anastomosis. F. H. Lahey, Boston.—p. 718.
Improvement on Voorhees Bag. E. L. Cornell, Chicago.—p. 718.

Prostatectomy.—This paper presents cumulative evidence as to the efficacy of the perineal operation in the treatment of hypertrophied prostate.

Stoffel Operation for Spastic Paralysis.—From the results obtained by the Stoffel operation in twenty-four cases, Heyman believes that the spastic contractures of the adductors and spastic equinus can be relieved absolutely. While spastic contracture of the fingers and thumb can be relieved, the ultimate function of the hand is not so encouraging as in the lower extremity. This, Heyman believes, is not the fault of the operation itself, but is due to the nature of the extreme complexity of motions required in the normal hand.

End-Results in Thyroid Surgery.—Porter believes that the roentgen rays, through the action on the thyroid and possibly on the thymus, will diminish the risk of operation and will permanently cure certain cases of exophthalmic goiter. On the other hand, in some cases roentgen-ray treatment, though persisted in for as long as two years, has had practically no effect. Surgery promptly cured. If six months' treatment with roentgen rays is not efficient, operation is indicated. The best index of a cure is a permanent reduction of the basal metabolism to normal. Whether the patient will be cured or not depends on the stage of the disease at which treatment is instituted and the degree of irreparable damage which has already resulted. Though ligation and hemithyroidectomy may cure many patients, ultimate subtotal thyroidectomy reduces the metabolism to normal, most quickly and permanently. The psychoses of this disease, which seems frequently to occur in neurasthenic individuals, requires long after-treatment.

Localizing Brain Tumors in the Comatose.—A left craniotomy was performed by Dandy on a patient in the terminal stages of coma from intracranial pressure, presumably due to a tumor or abscess. The sole means of determining on which side the exploration should be made was a Jacksonian convulsion beginning in the right hand. Though considered a most trustworthy localizing manifestation, it proved misleading on this occasion, for at necropsy an abscess was found in the right frontal lobe, i. e., it was homolateral to the side of the convulsion. During the operation, information was gained from the lateral ventricle which led to the adoption of a procedure which Dandy terms "estimation of the cerebral ventricles." Its object is to localize growths in such emergencies. The information leading to this end is derived from a determination of the capacity, location, and intercommunication of the cerebral ventricles, particularly the lateral ventricles. Since this first case, five other patients have been seen in coma from intracranial pressure. In none of them was any information obtainable, either from the history, of friends and relatives, or from the restricted objective examination of the unconscious patient, which was considered of merit in determining the location of the lesion. In four of these patients the lesion was a tumor, and in the fifth it was an acute hydrocephalus of chronic meningitis origin. In the last case, a tentative diagnosis of tumor was made but given up as a result of the "ventricular estimation" tests. Each of the four tumors was correctly localized by these tests and in each instance the tumor was found at operation and removed. Two of these patients succumbed on the following day and the other two, after complete removal of dural endotheliomata, recovered and are now entirely well.

Cranial and Intracranial Endothelioma.—Four hundred and twenty histories of cases, in which the diagnosis of brain tumor had been proved at operation or necropsy, were studied by Penfield and, of these tumors, eleven were found to be associated with a lump on the cranial vault. In one of these eleven cases the lump was soft and could be pressed inward through the skull. This proved to be a sarcoma and could not have been confused clinically with the remaining ten cases, in all of which the lump was quite evidently a bony prominence of the skull. All of these ten cases presented the same pathologic picture and similar clinical histories. Operative removal, when the patient survived the immediate effects, has resulted in cures. In most instances, it should be possible to make the diagnosis before the onset of distressing cerebral symptoms. The characteristic cranial prominence increasing over a considerable period, associated with pain of a stabbing character beneath the tumor, is pathognomonic of the condition. Whatever may be the etiology of these tumors, the cranial prominence is secondary to invasion of the skull by the intracranial tumor. It is incorrect to suppose that the cranial and intracranial tumors are of entirely different nature. They are the same, except that the growth of the former is accompanied by bone formation. It is evident, therefore, that the following hypotheses are incorrect: (1) that a primary thickening of the skull irritates the dura and thus causes the appearance of an intracranial endothelioma, or (2) that some irritation causes the dura to lay down neoplasm on one side and exostosis on the other. It is usually impossible to elicit a history of trauma, and yet the much greater incidence of this type of endothelioma among men than women suggests that trauma may be in some way an etiologic factor.

Renal Function Following Nephrotomy.—Complete nephrotomy, bilateral or unilateral, Magoun states, may be performed in dogs with maintenance of life and renal function. A single kidney may be subjected to nephrolithotomy and maintain sufficient function to support life and health. Secondary hemorrhage is a real danger in complete section of the kidney. Smaller incisions, single or multiple, may be made into the kidney to remove stone, with small risk of secondary bleeding. Generally pelviotomy is the operation of choice in the treatment of renal calculi; however, in selected cases, nephrolithotomy is indicated.

Preliminary Pneumothorax in Lung Surgery.—When a diagnosis of pulmonary affection requiring surgical intervention (most frequently a hydatid cyst) is made, Arce makes a roentgenogram of the thorax and introduces into the pleura of the side affected, a quantity of oxygen, or preferably nitrogen, varying from 300 to 500 c.c. For this purpose one of the types of apparatus employed for the production of artificial pneumothorax in the treatment of pulmonary tuberculosis is used. Generally, three punctures are sufficient, and when finished, another roentgenogram is made which permits of the comparison of the conditions, before and after the formation of the pneumothorax. In this condition the patient is prepared for operation. Arce's experience with preliminary artificial pneumothorax produced by this method has been very encouraging.

Bilharzial Appendicitis.—The preoperative diagnosis in Bailey and Bullard's case was: undeveloped uterus, anteflexed, retrocessed with stenosis of cervix, and chronic appendicitis. The entire mesoappendix and the distal two thirds of the appendix were thickly studded with tiny grayish-white nodules resembling tubercles. The appearance was that of a chronic lesion. The cecum was not involved and

careful inspection of intestines, omentum and pelvic organs failed to find any more such lesions. The lumen was empty. Microscopical sections showed very numerous nodular lesions about the size of and very similar in appearance to tubercles. In these nodules were seen sometimes one ovum, sometimes six or more, with a very definite cell membrane. These proved to be bilharzia. Only two other similar cases are recorded.

Third Omentum.—In two cases seen by Bierman and Jones, there was an additional omentum much like the greater omentum, but instead of being dependent from the transverse colon it was dependent from the lesser curvature of the stomach. No pathologic conditions of any kind were found in the upper half of the abdomen. The additional loop of omentum, therefore, was not the result of an inflammatory condition in which there had been a separation of omentum in an attempt to localize an inflammatory process, but appeared to be a distinct developmental variation.

Endothermy.—Wyeth describes endothermy as a treatment of accessible malignancy which greatly reduces the danger of metastasis and the likelihood of recurrence by removing the growth as a necrotic mass instead of as a group of viable cells.

U. S. Naval Medical Bulletin, Washington, D. C.

18: 545-672 (May) 1923

Some Causes of Physical Rejection for Service. D. N. Carpenter and D. Ferguson.—p. 545.
Naval Hospital at San Diego, California. A. W. Dunbar.—p. 557.
Advances Made in Our Professional Work During Past Year. W. D. Owens.—p. 560.
Surgical Abdomen. G. W. Shepard.—p. 569.
Internal Derangements of Knee Joint. J. Dunlop.—p. 575.
Hyperthyroidism. J. B. Pollard.—p. 585.
Chronic Appendicitis. C. L. Andrus.—p. 589.
*Yaws, Study Based on Over 2,000 Cases Treated in American Samoa. D. Hunt and A. L. Johnson.—p. 599.
"Eliminators" in Laboratory Technic. H. E. Harvey.—p. 608.

Eradicating Yaws in Samoa.—In 1921, after a survey of the islands, Hunt and Johnson state it was estimated that there were, including all stages, 2,500 cases of yaws. A campaign was started immediately to eradicate the disease. Over 2,500 injections of neo-arsphenamin were administered at the Samoan Hospital, outlying dispensaries, and by a party that visited all villages. During the first six months of 1922, this campaign was continued and 750 injections of neo-arsphenamin have been administered. Necessary quarantine laws have been enacted. The authors have been unable to cause infection through intact skin with the scrapings from a yaws lesion. *Spirochaeta pertenue* has been found in the ulcerated and nonulcerated lesions of the secondary stage. They have been unable to find *S. pertenue* in the scrapings from tertiary lesions. They have seen five cases that were caused by the "contact" method of infection. The passage of the disease in these cases was from the suckling to the mother's breast. These mothers all gave a history of yaws during childhood. The principal cause of transmission of yaws in Samoa is the fly. No permanent immunity is gained by childhood attacks. Hunt and Johnson have on record many cases of reinfection in the untreated and among those presumable cured. The symptomatology of the disease is reviewed. As to treatment: All lesions should be dressed, the nature of the dressing depending on the condition of the lesion, and the local treatment does not vary from the accepted standard treatment of all similar skin conditions. Local treatment alone has no effect on the general condition. Potassium iodid, when indicated, is of great value. Mercury internally has been thought to do good in some cases. One injection of arsphenamin or neo-arsphenamin is not sufficient to effect a cure. Hunt and Johnson have found that at least three injections of a sufficient amount, over a period of not more than three weeks, will give the best results. The intravenous method is the one of choice and should always be employed whenever possible. Never less than 0.3 gm. of neo-arsphenamin is given intramuscularly to children when a vein cannot be conveniently used, and 0.9 gm. of neo-arsphenamin intravenously is the initial dose for the average adult.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

1: 321-352 (April) 1923

Congenital Idiopathic Dilatation of Colon. D. Firth and K. Playfair.—p. 321.
Further Developments in Spectrometric Method of March, Staunig and Fritz, for Determination of Quality of Roentgen Rays. K. Staunig.—p. 328.
Pyelography. J. Thomson-Walker.—p. 334.
Dislocation of Upper End of Fibula Forward without Fracture of Tibia or Fibula. R. H. Sankey.—p. 344.

British Journal of Experimental Pathology, London

4: 37-104 (April) 1923

*Behavior of Platelets in Vitamin A Deficiency; Technic of Counting Them. W. Cramer, A. H. Drew and J. C. Mottram.—p. 37.
Yucatan Elemi as Substitute for Canada Balsam as Mounting Medium. H. W. Southgate.—p. 44.
*Growth and Differentiation in Tissue Cultures. A. H. Drew.—p. 46.
Mode of Production of Bacteriophage. E. H. Lepper.—p. 53.
*Detection of Spirocheta Pallidum. J. E. Barnard.—p. 68.
Etiology of Typhus Fever. J. A. Arkwright and A. W. Bacot.—p. 70.
Brain and Immunity Reactions to Jensen's Rat Sarcoma. W. S. Lazarus-Barlow and R. H. Parry.—p. 80.
*Relative Concentration Ratios of Some Constituents of Urine. S. W. F. Underhill.—p. 87.
*Vascular Changes Affecting Bulbar Nerve Centers. D. T. Barry.—p. 92.

Blood Platelets in Vitamin A Deficiency.—The constant occurrence of a deep thrombopenia in vitamin A deficiency in rats has been confirmed by Cramer et al. A detailed account is given of the technic of platelet counting, with special reference to the microscopic technic required to obtain reliable results. It is shown that with a faulty optical system the platelet count in vitamin A deficiency gives figures which greatly exceed, sometimes to the extent of 100 per cent., those obtained with a correct optical system giving the highest possible resolution. This is due to the fact that in vitamin A deficiency a number of bodies other than platelets but of similar dimensions appear in the blood and are mistaken for platelets when a faulty microscopic technic is employed.

Growth Activating Substances in Tissues.—The substances necessary for continuous growth, which are present in extracts of embryonic tissues, Drew says, are able to pass through a Berkefeld filter. Adult tissues and tumors appear to contain these substances in lower concentration. Tissues and tumors, when grown free from connective-tissue elements, grow as undifferentiated sheets. If connective tissue be added to such growths differentiation sets in. Autolyzed extracts of normal adult tissues contain a growth activating substance which when added to cultures of normal adult cells causes very rapid proliferation. Extracts of tumors, prepared in the cold and not subjected to autolysis, also contain this substance, and tumor cells appearing to be able to form it continuously.

New Method of Detecting Spirochetes.—A method of detecting spirochetes is described by Barnard, which has been found easy in manipulation and constant in results. The only appliance necessary, in addition to the ordinary microscopic equipment for dark ground illumination, is a graticule, which is placed on the diaphragm in the ocular in the same way that an eye-piece micrometer is disposed. The graticule consists of a photographic image with a semi-transparent ground on which a number of clear spaces are regularly disposed, so that a large proportion of these spaces are always in the field of view. The purpose is to so arrange matters that each clear circle occupies the same area in the field that would be occupied by a red blood cell. A normal red blood cell should be observed, and if its image exactly fills one clear circle then adjustment is correct. When all is in correct adjustment the spirals to be counted are brighter than those outside the circle and this greatly facilitates the counting. After some little experience it is possible to tell without actual counting whether the required seven coils are within the circle, or, what is equally important, whether more or fewer than this number are there. The method may

be applied to other spirochetes of which the spacing of the coils is characteristic.

Concentration Ratio of Urine Constituents.—Underhill found urea and creatinin evenly distributed between plasma and corpuscles in the blood of the cat. After the injection of urea and creatinin into the blood stream the substances may be found equally distributed between plasma and corpuscles, or there may be a greater proportion in the plasma. After the injection of inorganic phosphate and uric acid a larger proportion is found in the plasma relative to the proportion present in the corpuscles.

Vascular Changes Affecting Bulbar Nerve Centers.—Barry asserts that the reflex excitability of bulbar nerve centers differs from their tonic activity, whether natural or induced by reflex excitation. Bleeding up to 40 or 50 per cent. of the calculated total blood affects the first-mentioned less than the second, though both properties depend on a proper blood supply. The vasomotor center is less rapidly affected by change of volume flow and oxygen content than is the cardio-inhibitor center. Both function after excessive bleeding and infusion of gum saline, until the hemoglobin is reduced to about one fifth of the normal amount (80 per cent. of the total blood removed). Loss of blood amounting to 85 or 90 per cent. and brought about by secondary bleeding was not sufficient to cause death of the centers, if not too long exposed to these conditions. The vasomotor center in these extreme conditions is the most susceptible, though there is little difference between it and the respiratory center. The cardio-inhibitor center, though the earliest to suffer, is the most resistant to irreparable damage. Rough handling of the tissues in dissection is a more serious cause of disturbance of reflex responses in the nerve center than a moderate amount of hemorrhage. Gum saline effects recovery of the centers after long periods of exposure to very low hemoglobin content, represented by about 7 or 8 per cent. by volume of corpuscles. For permanent recovery blood is needed in addition for these extreme cases; in lesser degrees of privation, to 12 or 15 per cent. of corpuscles, gum saline alone rapidly effects recovery.

British Journal of Ophthalmology, London

7: 209-256 (May) 1923

Two Cases of Tumor (Glioma; Endotheliома) of Optic Nerve. H. Neame.—p. 209.
Endotheliома of Orbit. F. A. Williamson-Noble.—p. 222.
Ophthalmic History of Samuel Pepys. R. R. James.—p. 231.
Modified Suction Cataract Extractor. R. F. Moore.—p. 235.
New Reduced Eye Adapted to Accommodation. V. C. Verbitzky.—p. 237.
Microphthalmia with Vertical Slitlike Pupil, Opacity of Cornea, and Remains of Pupillary Membrane. W. D. Lawrie.—p. 240.

British Journal of Surgery, Bristol

10: 433-604 (April) 1923

Eponyms: VIII. Pott's Fracture. D'Arcy Power.—p. 433.
*Hyperplasia of Epithelial and Connective Tissues in Breast: Relation to Fibro-Adenoma and Other Pathologic Conditions. G. L. Cheatle.—p. 436.
*Actinomycosis of Right Iliac Fossa. R. St. L. Brockman.—p. 456.
Giant Cell Tumors of Tendon Associated with Xanthelasma. R. Ollerenshaw.—p. 466.
Tumors of Tendon and Tendon Sheaths. St. J. D. Buxton.—p. 469.
Myositis Ossificans and Volkmann's Paralysis: Two Cases Illustrating Rarer Complications of Supracondylar Fracture of Humerus. W. R. Bristow.—p. 475.
Lengthening Tendo Achillis. H. H. Greenwood.—p. 483.
Osteitis Fibrosa. R. L. Knaggs.—p. 487
Chronic Duodenal Ileus: Report of Cases. S. Barling.—p. 501.
Abnormalities of Right Hepatic, Cystic and Gastroduodenal Arteries and of Bile Ducts. E. R. Flint.—p. 509.
Treatment of Acute Appendicitis. R. J. McNeill Love.—p. 520.
*Femoro-Inguinal Operation for Radical Cure of Femoral Hernia. E. W. H. Groves.—p. 529.
Abnormalities of Fixation of Ascending Colon: Relation of Symptoms to Anatomic Findings. A. A. McConnell and T. G. Hardman.—p. 532.
Surgical Treatment of Atonic Dyspepsia. C. A. Pannett.—p. 558.
Case of Diaphysial Aclasis. A. H. Southam and R. S. Paterson.—p. 562.
Clinical Aspects of Bronchial Cysts. H. Bailey.—p. 565.
Spontaneous Rupture of Hydronephrosis. W. Q. Wood.—p. 574.
Obscure Cervical Growth. W. Mercer.—p. 576.
Internal Hernia Following Posterior Gastro-Enterostomy: with Acute Dilatation of Stomach as Sequence to Reduction. W. T. Warwick.—p. 577.
Case of Bilocular Gallbladder. B. W. Ryecroft.—p. 579.
Fibroma of Stomach. A. J. Blaxland.—p. 581.

Fibro-Adenoma of Breast.—Cheatle divides fibro-adenomas of the female breast into three classes: (1) the hyperplasia intra-elastica class, which can be subdivided into (*a*) tumors affecting ducts, (*b*) tumors affecting acini, and (*c*) a diffused form affecting ducts and acini; (2) the hyperplasia elastica class, which exists only in the diffused form affecting ducts and acini, and (3) the hyperplasia extra-elastica class, which can be subdivided into (I) pericanalicular and peri-acinous tumors, of which there is (*a*) a localized form and (*b*) a diffused form, and (II) the intracanalicular tumors. Cheatle believes that it is exceedingly rare for carcinoma to originate in a localized fibro-adenoma. He has seen only one example of this occurrence. Unsuspected fibro-adenomata, often only just visible to the naked eye when examining a section of a whole breast, occur in 28 per cent. of all breasts containing carcinoma. The only practical outcome of Cheatle's observations seems to be that it is safer to take away the segment of the breast in which fibro-adenomata grow. The successful removal of a fibro-adenoma by enucleation, he says, is the result of a lucky accident.

Actinomycosis of Right Iliac Fossa.—The present prognosis of actinomycosis of the right iliac fossa, Brockman says, can only be described as gloomy in the extreme. The average mortality of recorded cases of abdominal infection of this nature is somewhere in the neighborhood of 80 per cent. The length of time which intervenes between the first symptoms and death varies from six months to two years. There is no doubt that the life of the patient is of longer duration in those cases in which conservative surgery has played a part. Until the life history of the infecting agent has been worked out more fully, so that measures of prevention may be adopted, the only hope of reducing the present high mortality of this disease must lie in earlier diagnosis and the subsequent possibility of prompt treatment. Four cases of ileocecal actinomycosis are rported.

Femoro-Inguinal Operation for Femoral Hernia.—Groves divides the attachment of Poupart's ligament close to the pubic spine. This gives a clear view of the neck of the sac, which is then opened and its contents dealt with according to their condition. Should resection of the bowel be necessary, this can be done perfectly well by the exposure thus afforded. When the sac has been cut off and its neck ligatured, the femoral ring and canal can be obliterated. The conjoined tendon is defined and sutured to Cooper's ligament and the upper edge of the pectineal fascia. The outer one or two stitches also take up the femoral sheath on the inner side of the femoral vein, so as completely to close the abdominal cavity from the thigh. Poupart's ligament is then laid over the line of suture between the conjoined tendon and Cooper's ligament, beginning from the vein and working inwards toward the spine of the pubis. As the inner attachment of Poupart's ligament has been divided, there is no tension in this structure and it can be made to follow the line of the pubic bone, and the final attachment of its cut end will be about ½ inch further outward than it was originally.

Indian Medical Gazette, Calcutta

58: 193-240 (May) 1923

Beriberi and Epidemic Dropsy Problem. J. W. D. Megaw.—p. 193.
Pharmacology and Therapeutics of Boerhaavia Diffusa. R. N. Chopra, S. Ghosh, B. N. Ghosh and. P De.—p. 203.
End Results in Intra-Capsular Extraction (Smith's). F. F. S. Smith.—p. 208.
Spleen Puncture Findings in Malaria. R. Knowles, H. W. Acton and S. A. S. B. Mohan.—p. 211.
Case of Intestinal Obstruction Complicated by Tetanus. F. J. W. Porter.—p. 213.
Fatal Case of Cerebral Contusion. A. C. Syam.—p. 214.
Cysticercus of Subconjunctival Tissues. R. E. Wright.—p. 215.
Case of Food Sensitiveness. B. M. Chowdhury.—p. 216.
Unusual Infection with Bacillus Pyocyaneus Simulating Leprosy. S. Mallannah.—p. 216.

Journal of Tropical Medicine and Hygiene, London

26: 151-178 (May 15) 1923

Pasteur and His Work Historically Considered. L. W. Sambon.—p. 151.

South African Medical Record, Cape Town

21: 193-216 (May 12) 1923

Psychotherapy. C. M. Murray.—p. 195.
New Landmarks in Public Health. A. J. Orenstein.—p. 203.

Archives de Médecine des Enfants, Paris

26: 65-128 (February) 1923

Tuberculin Reaction in Children. E. Mensi.—p. 65.
*Pirquet Index in Children. Garrahan and Bettinotti.—p. 71.
*Herpes Zoster and Varicella. Condat.—p. 77. Id.—p. 83.
Acute Azotemic Nephritis in Children. Gautier and Guder.—p. 86.
Vaccine Therapy in Streptococcus Nephritis. Pecker and Lamare.—p. 91.
*Puericulture in Tunis. J. Comby.—p. 93.

Pirquet Index of the Nutritional State.—Garrahan and Bettinotti measured and weighed 203 school children at Buenos Aires. The figures conformed to Pirquet's standards.

Relations Between Herpes Zoster and Varicella.—Condat discusses the alleged proofs of identity of herpes zoster and varicella, and finds that they are far from convincing. She observed one case of herpes zoster which was followed by three cases of varicella in the same family. An exact analysis, however, showed that the infection by varicella could be traced to contact with other children on different Sundays, while the zoster seemed to be just a coincidence. The child with herpes had had varicella before, and was therefore immune to it, but not to herpes.

Puericulture in Tunis.—Comby deals with infant welfare work in Tunis, and reports what has been done. The mortality of children among the Arabs of Tunis is 50 per cent.; among the negroes of other French colonies, 75 per cent.

Bulletin de l'Académie de Médecine, Paris

89: 419-450 (April 17) 1923

*Treatment of Diabetes. Desgrez et al.—p. 424.
*Pulmonary Syphilis in Adults. M. Letulle.—p. 438.
Poliomyelitis from Mushroom Poisoning. Rémond and Colombies.—p. 444.
Pathogenesis of Tuberculous Congestive Abscesses. J. de Ziemacki.—p. 446.

Insulin, Levulose and Dietetic Treatment of Diabetes.—Desgrez, Bierry and Rathery answer Labbé's polemic. They maintain the identity of diabetic acidosis with acidosis of a carbohydrate-free diet, and the difference from the acidosis of fasting. The action of insulin refutes Labbé's opinion that diabetic acidosis is not due to lack of carbohydrates and incapacity of the diabetic patient to burn them. A balanced diet is beneficial even during insulin treatment. Levulose is better tolerated than glucose.

Pulmonary Syphilis in Adults.—Letulle draws the attention of clinicians and pathologists to pulmonary syphilis. Every chronic affection of the lungs, whether fibrous or bronchiectatic, may be due to syphilis. It is possible that in the pathology of the lungs it plays a part which is as important as in affections of the liver, aorta and heart. In the discussion, E. Sergent pointed to the frequency of the fibrous form of pulmonary tuberculosis in old syphilitics. L. Bernard confirmed this frequent association of pulmonary syphilis and tuberculosis, and said that arsphenamin preparations have often an excellent effect.

89: 451-466 (April 24) 1923

*Preventive Protein Vaccination. Arloing and Langeron.—p. 453.
*Rarity of Accidental Infection of Guinea-Pigs. Remlinger.—p. 456.
*Real Nature of Coxa Plana. Calot.—p. 460.
A New Mercurial Preparation. Spillmann and Douris.—p. 463.

Preventive Polyvalent Protein Vaccination.—Arloing and Langeron found that repeated injections of different proteins (horse serum, casein, peptone) cause in guinea-pigs a refractory state against subsequent infections with pyocyaneus bacilli. This condition is very marked during the first hours after the protein injection. After forty-eight hours the animals were, on the contrary, hypersensitive. Later the refractory (or immune) state reappeared. They point to Garrelon, Santenoise and Thuillant's experiments, which demonstrated that hypervagotonia causes sensitiveness, hypersympathicotonia insensitiveness to chemical poisons. The successive phases of tonus of the vegetative nervous system after injections of proteins may account for the results of non-specific preventive injections.

The Great Susceptibility of Guinea-Pigs to Experimental Tuberculosis and the Rarity of Their Contamination in Laboratories.—Remlinger has observed only five instances of spontaneous contamination among thirty-five guinea-pigs kept with other animals with open tuberculous lesions. Fifty-two animals remained healthy for a year, though their food was mixed daily with a dilution of feces from tuberculous guinea-pigs, 50 per cent of which contained tubercle bacilli. Exposure of young animals sucking tuberculous mothers and familial exposure did not change the results. Pregnancy did not seem to affect the course of the disease. These observations show that conclusions concerning the disease in man from observations of tuberculosis in guinea-pigs must be made with great caution.

Real Nature of Coxa Plana.—Calot considers coxa plana one of the radiographic aspects of a special dystrophy of spinal or cerebral origin, which may lead to congenital luxation of the hip joint.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 459-529 (March 23) 1923

*Desensitization by Cutaneous Reactions. Vallery-Radot.—p. 460.
"Erosive Pluriorificial Ectodermosis." de Lavergne.—p. 462.
*Treatment of Asthma. Trabaud and Charpentier.—p. 466.
*Variations in Vagosympathetic Tonus. Tinel et al.—p. 471.
*Lateral Amyotrophic Sclerosis with Hemiplegia. P. Marie et al.—p. 481.
*Tuberculosis in French Ex-Soldiers. M. Brelet.—p. 485.
Epidemic Encephalitis with Chronic Myoclonia. M. Reh.—p. 490.
Epidemic Encephalitis Following Herpes Zoster. Morel et al.—p. 493.
Atypical Epithelioma of the Bladder. Morel and Tapie.—p. 497.
*Serum Prophylaxis Against Measles. de Jong and Bernard.—p. 500.
*Gonorrheal Arthritis and Arthrotomy. F. Benzançon et al.—p. 502.
*Laryngeal Spasm in Hypervagotonia. Paisseau and Lambling.—p. 507.
*Cervical Spina Bifida Occulta. A. Léri.—p. 509.
Cervicomediastinal Lymphosarcoma. Blamoutier and Quignon.—p. 512.
*Oxygen Therapy. Lian and Navarre.—p. 516.
Subcutaneous Injections of Oxygen. Lian and Navarre.—p. 524.

Desensitization by Repeated Slight Cutaneous Reactions.—Vallery-Radot says that the cutaneous method of desensitization described by him and Haguenau, in 1921, is much simpler than subcutaneous injection of progressively increasing doses of the specific substance. He refers to a patient, subject to severe asthmatic attacks in the presence of emanations from horses, whom he subjected to cutaneous reactions from horse-hair, nearly daily for two months, with success. His experiments show that it is thus possible to desensitize an anaphylactic subject through the repeated application to the skin of minute quantities of the protein to which he is susceptible. The method has been tried with success by others, but it had no effect on one patient sensitive to ipecac, even though he experienced the blood shock with the cutaneous ipecac reaction.

Desensitization by Repeated Cutaneous Reactions in Asthma of Sheep Origin.—Trabaud and Charpentier report a case of asthma recurring at infrequent intervals from the age of 6. Native of a sheep country, the young man one day was employed at a wool carding machine, and in fifteen minutes he was seized with an attack of unprecedentedly severe suffocation. Other attacks followed, and he had to stop this work. During the war he was forced to work for the Germans. He remembered this wool carding machine experience, and he ripped his mattress and buried his head in the wool filling. A few minutes later he was seized with such a violent attack of asthma that he was sent to the hospital. Six months later, having improved, he again resorted to the means that had served him so well before, with the same results, so he was permanently exempted from forced labor for the enemy. Since that time he has been subject to asthmatic attacks of varying severity and at irregular intervals, until given the cutaneous reaction treatment with wool applied to a scarified place on each deltoid region. At the first application, urticaria developed instantly around the area, but soon disappeared. The dyspneic shock followed some hours later. The local and respiratory reactions grew less pronounced, and in two months the asthma seemed to have been entirely cured. He can now handle and sleep on wool without harm.

Cycle of Variations in the Vagosympathetic Tonus in the Erythema of Serum Sickness and Eruptive Diseases.—Tinel, Santenoise and Laurent, after experimenting with twenty-six

cases, explain how anaphylactic shock is influenced by changes in the vagosympathetic tonus. There is first an accentuation of the preceding condition and then a more or less complete and durable inversion. In a vagotonic subject, a shock will first produce an accentuation of the excitability of the vagus, and then a reverse, sympatheticotonic condition, during which no new shock can be produced. This sympatheticotonic insensibility seems to be the main element in the nonspecific antianaphylaxis procedures. In a sympatheticotonic subject, on the other hand, vagotonia will appear secondarily. Then the subject becomes sensitive both to a new shock and to the persisting action of the injected substance. This reciprocal action of the tonus on the shock, and of the shock on the tonus, is of fundamental importance.

Anatomic Study of a Case of Amyotrophic Sclerosis with Hemiplegia.—Marie, Bouttier and Bertrand report the necropsy findings in a case of amyotrophic lateral sclerosis in which only one side was affected.

Reflections on Cases of Pulmonary Tuberculosis, Examined by the Board of Review.—Brelet, consulting physician on the board of review at Nantes, in his official report for 1922, and part of 1923, covering 680 examinations, says that about one third of the cases refer to pulmonary tuberculosis. The patients have a tendency to exaggerate the intensity of their symptoms, but when applying for a job on the railroads, or elsewhere, he had noticed that the same men no longer have any lung symptoms. A great number of the men have greatly improved, or are cured. From a military point of view they are definitely discharged and pensioned, but the pension has been reduced as they have improved. If the disease flares up again, they will be entitled to an increase of pension.

Prophylaxis Against Measles by Injection of Serum from a Convalescent.—De Jong and Bernard report a severe epidemic of measles, with two deaths out of seven cases from January 15 to February 9. They injected sixteen children with 2 c.c. of a convalescent's serum on February 13 and 14, with excellent results, only one of the injected children developing measles, and it was mild.

Gonorrheal Arthritis and Arthrotomy.—Bezançon, Weil and Weismann-Netter say that the introduction of new methods of therapeutics, vaccines, serums, proteins, etc., has made us forget the necessity to resort to surgical intervention in certain forms of gonorrheal arthritis. They had a patient who had resisted every kind of medical treatment but recovered rapidly after arthrotomy with evacuation of the joint content, careful exercises, rinsing with ether, and primary suture.

Loss of Consciousness with Laryngeal Spasm from Hypervagotonia.—Paisseau and Lambling say that the hypervagotonia found by Lian and Pinart in their cases confirms the circulation theory. In one of Thermes' cases the heart beat and, in Kurz' case the pulse became scarcely perceptible. In a case here reported it was sufficient to tell the patient to cough in order to see this voluntary effort cause an attack in which the pulse became imperceptible, and this lasted for several seconds after the spasm. In their case it seems more logical to speak of a bronchial than a laryngeal spasm, but whatever the cause of the hypervagotonia, the mechanism of the attacks appeared to be that, owing to the extreme excitability of the vagus, the effort of coughing induced bradycardia of sufficient duration to cause loss of consciousness through cerebral anoxemia, the mechanism resembling that of the vertigo of Stokes-Adams disease.

Cervical Spina Bifida Occulta with Late Manifestations of Occipital Neuralgia and Brachial Paraplegia.—Léri's patient, at the age of 40, developed severe sensory and motor clinical symptoms indicating syringomyelia in the first six cervical segments. Radiography showed a median opening in place of the spinous process of the third cervical vertebra. The opening in the spine itself could not have caused all the various symptoms, but this opening indicated a congenital lesion of the spinal cord, extending beyond the cleft. What was remarkable was the absence of the classical external signs, tumefaction or depression of the skin, and the fact that the congenital malformation had not manifested itself until the age of 40. The woman is now 47.

Intensive Oxygen Therapy by Inhalation Through the Pneumo-Oxygenator.—Lian says that inhalation through ordinary apparatus is too great an effort for the patient, and he receives too small a quantity of oxygen to be of great value in treatment. In addition, the expirations are made into the receptacle from which the patient inhales, thus vitiating the oxygen. He says that the simple apparatus he describes (with an illustration) allows easy intake of oxygen, and the valve insures expiration into the open air. The pressure of the oxygen regulates the amount which passes into the blood. Intensive oxygen therapy is resorted to, as a rule, only in serious cases of chronic or acute pulmonary affections, or of cardiopathy, and the patient should therefore not be fatigued by respiratory efforts, but should be able to breathe naturally. In cases of cardiac insufficiency and in acute pneumonia, inhalation treatment of thirty minutes at intervals of six hours may be prescribed. The oxygen should be tested before use by applying to it a lighted match, extinguished to a mere spark. In severe dyspnea, inhalation during twenty or thirty minutes, or even during ten or fifteen minutes, through the pneumo-oxygenator, produces remarkable results. He describes also an apparatus for subcutaneous injection of oxygen.

Paris Médical

13: 225-240 (March 10) 1923

Bacillus Proteus. Besson and Ehringer.—p. 225.
*Action of Pituitary Extract in Hemorrhage. Perrin, Hanns and Stefanovitch.—p. 229.
*Complications of Artificial Pneumothorax. Hervé and Roussel.—p. 233.
*Effect of Quinidin on Arrhythmia with Goiter. E. Benhamou.—p. 235.
Labyrinthitis from Inherited Syphilis; Two Cases; Recovery. Predescu-Rion.—p. 236.

Antihemorrhagic Effect of Pituitary Extract.—Perrin and Hanns used the extract of the posterior lobe of the hypophysis intravenously and found its effect on the coagulability of the blood, arterial pressure, and the pulse decided though irregular. The antihemorrhagic action of the extract alters principally the coagulation of the blood.

Complications of Artificial Pneumothorax.—Hervé and Roussel attribute pyothorax to a specific origin, generally perforation of the lung, and seldom to exogenic infection, by pus from a cold abscess in the pleural cavity, or from germs in the blood and lymph. Diagnosis of pulmonary perforation is difficult, the color, fever with great fluctuations, and general collapse being merely presumptive symptoms. The only certain sign is when the manometer falls rapidly to zero; this indicates perforation. The pleural pus should be examined for tubercle bacilli by inoculation of a guinea-pig; this is positive more frequently than direct examination. Resection on both sides gave more favorable results than thoracentesis alone. To avoid the shock of large operations, they divide the intervention into stages, using local anesthesia, with costotomy as low as possible, in order to secure good drainage. They believe the wisest method in the majority of cases is exploratory puncture, autovaccination, simple pleurotomy with drainage, completed by balneotherapy and prolonged solar treatment.

Effect of Quinidin in a Case of Complete Arrhythmia with Large Goiter.—Benhamou reports the case of a woman, aged 45, who in the tenth month of the menopause was for the first time seized with paroxysmal tachycardia which lasted half an hour. She had for some time had a goiter which suddenly increased in size simultaneously with the cardiac crisis and, with the aggravation of the cardiac syndrome, became very large. The asystolia subsided under digitalis; diuresis improved; and the dyspnea became less marked, but the tachyarrhythmia persisted, with no change in the rhythm after eight days' treatment. Then he prescribed quinidin (0.2 gm. of the sulphate three times a day). The heart action improved the first day, and the goiter decreased in size and eventually disappeared.

13: 269-284 (March 24) 1923

Associated Surgery, Roentgen-Ray, and Radium Treatment of Cancer. J. L. Roux-Berger.—p. 269.
*Poisons and the Nervous System. Garrelon and Santenoise.—p. 274
Morphologic Phenomena in Organic Humors. L. Septilici.—p. 279.

Poisons and the Involuntary Nervous System.—Garrelon and Santenoise found reactions to poisons dependent more on individual idiosyncrasy than on the toxicity of the substance used. Experiments showed that in hypovagotonia the organism resists the action of the injected poison more decidedly than in vagotonia, and that the promptness of the shock is in proportion to the tonus of the involuntary nervous system, both with anaphylactic and other poisons, crystalloid as well as colloid. They experimented with a violent crystalloid poison, a zinc cyanid, with and without preceding pilocarpin. Animals, naturally vagotonic, with marked oculocardiac reflex, resisted the action less than naturally hypovagotonic animals with a weak or inverse oculocardiac reflex. The effect evidently depends more on the tonus of the involuntary nervous system at the time the poison enters the circulation than on the amount of the poison administered. "Evidence is accumulating to sustain the assumption of a neurovegetative diathesis."

23: 337-352 (April 14) 1923

Brain Tumor Simulating Epidemic Encephalitis. Claude et al.—p. 337.
*Prevention of Typhoid Fever in Cities. Loir and Legangneux.—p. 339.
*Vitamins in Medical Practice. G. Houlbert.—p. 344.
*Tuberculous Lesions of Mouth. Gamaleia and Morlot.—p. 348.

Prevention of Typhoid Fever in Large Cities.—Loir and Legangneux deal with different causes of typhoid fever in Havre. Twenty years ago almost 300 persons died yearly from typhoid fever in this town. Since then the average is twenty, if epidemics, like the recent one due to oysters, are excluded. Milk, oysters and vegetables are important in the spreading of infection.

Vitamins in Medical Practice.—Houlbert believes that each vitamin enhances the action of others.

Treatment of Tuberculous Lesions of Mouth and Pharynx.—Gamaleia and Morlot recall Jacques' method of treatment with potassium iodid. They report recovery of a girl aged 10 who received from 1 to 3 gm. daily for six weeks. They cauterized the ulcers with a weak solution of lactic acid.

Presse Médicale, Paris

31: 429-440 (May 12) 1923

*Suprarenal Insufficiency. E. Sergent.—p. 429.
*The Pulse in Aortic Insufficiency. L. A. Amblard.—p. 433.
*Diffuse Peritonitis. L. Sauvé.—p. 435.

Present Conception of Suprarenal Insufficiency.—Sergent has been publishing data on this subject for twenty-five years, but he says now that the interpretation of the facts observed requires revision. Extreme insufficiency of the suprarenals induces a clinical picture suggesting acute poisoning. Toxic disturbances characterize inadequate function of the suprarenals, but this fact has been obscured by the vogue of epinephrin. The acute toxic disturbances are of four types, suggesting acute poisoning, meningitis, peritonitis or cholera. Chronic insufficiency is revealed by hypotension, tendency to bronzing and asthenia in which the muscles show exceptionally rapid and intense fatigue when measured with the ergograph or dynamometer. This fatigability is the early phase of what becomes in extreme insufficiency painful cramps, contractures and terminal convulsions. Sergent retracts his former statements in regard to white dermographia as a sign of suprarenal insufficiency. He admits that this was a mistake, but adds that time is confirming more and more his conception of the toxic nature of the disturbances from suprarenal insufficiency.

The Blood Pressure in Aortic Insufficiency.—Amblard warns that normal or high diastolic pressure with aortic insufficiency is an almost certain sign of a syphilitic basis. Under other conditions, the diastolic pressure is low, and the differential tension is never so extreme as in the first category.

Acute Diffuse Peritonitis.—Sauvé describes and comments on the revolution in the conception of acute generalized peritonitis in the last fifteen years. The classic symptoms of fifteen years ago are now recognized as terminal symptoms.

31: 441-448 (May 16) 1923

*Indications for Nephrectomy. G. Marion.—p. 441.

Indications for Nephrectomy.—Marion extols the greater reliability of the ureteral catheter findings as compared with the ureosecretory index. If catheterization by the natural route is impracticable, he has always succeeded with it when the bladder was opened.

31: 449-460 (May 19) 1923

*The Pains with Compression of Spinal Cord. J. A. Barré.—p. 449.
*Distress and Obsession. R. Mallet.—p. 451.
*Short Neck. P. Rebierre.—p. 452.
Papaverin to Combat Spasm. L. Cheinisse.—p. 454.

The Pains with Compression of the Spinal Cord.—Barré discusses the significance of pains above and below the lesion, and the interpretation of those for which the cord itself, the sympathetic nerve, or the roots are responsible.

Recurring Distress and Obsessions.—Mallet analyzes a number of typical cases, and emphasizes the importance for the cure of reliance on the physician's moral support. The trouble is not amenable to hypnotism or suggestion, and if psychanalysis is applied, the instincts of self-preservation and association should be considered, rather than the sex instinct. The disturbances are in the sphere of sentiment instead of will. The tendency is to hypersecretion rather than hyposecretion, and rest, even bed rest, may be advisable, with tepid hydrotherapy and Swedish exercises. To advise the patient to "brace up" and seek distractions is asking more than he is capable of. All stimulants should be avoided. In conclusion, Mallet says that further research on shock treatment may aid in treating these conditions which pertain to physiology as well as to psychology. He compares the condition to a grinding machine that is working with nothing to grind.

Short Neck.—Rebierre describes his case as a man without a neck. He presented a heterolateral nervous affection of the right twelfth cranial nerve and of the tenth and eleventh on the left side.

31: 473-484 (May 26) 1923

*Inherited Syphilis and Phenomena of Sensitization. Ravaut.—p. 473.
Hematomas and Abscesses in Rectus Aponeurosis After Laparotomies. P. Bonnet and L. Michon.—p. 477.

Sensitization in Inherited Syphilis.—Ravaut for two years has been calling attention to the frequency of inherited syphilis as a factor in certain cases of eczema, urticaria, asthma, etc., of the sensitization phenomena type. He gives details of eight typical cases. Maternal heredity seems to be most frequent; it often skips a generation, and instances of urticaria, asthma or idiosyncrasies are often found in collateral branches of the family. The manifestations may alternate, running the whole gamut in the patient himself, or through the family. As syphilis is the principal disease which displays such hereditary and familial characteristics, it should be suspected in all such sensitization phenomena. The Wassermann test is not sensitive enough to reveal the inherited taint. The reaction was positive only in 4 of 62 cases in this group; the Hecht test was positive in 20, and the Desmoulières in 40. In 3 cases of psoriasis, the Desmoulières elicited 3 positive reactions while the Wassermann and Hecht were both negative. Desensitization by repeated application of the noxious substance involved or by polyvalent treatment with peptone, sodium salts, autoserotherapy or autohemotherapy answers the purpose, but the effect may be only transient. By treatment of the predisposing inherited taint, the soil becomes modified so that the effect of the desensitization is permanent. The treatment of the mild inherited taint should be gentle and long continued. He alternated tablets of calomel and of neo-arsphenamin, on alternate days, breaking up the tablets to fraction the dose during the day and insure their being dissolved. After three weeks he changed to some desensitizing drug or autoserotherapy. After this combined mild mercury-arsphenamin and desensitizing treatment—all by mouth—the cure seemed to be stable. The dissovery of anaphylaxis, the conception of colloidoclasis, have thrown light on the nature of certain disturbances. The predisposition to these disturbances may be in the nervous, endocrine or other system. But this predisposition traced farther back often, but of course not always, leads to inherited syphilis. When this is the case, a simple, mild, but persevering treatment by the mouth may modify

conditions so decidedly that, as Ravaut's experience demonstrates, tenaciously rebellious affections may spontaneously subside. In one case the tendency to eczema was promptly cured but the tendency to asthma persisted until the courses of treatment had been resumed from time to time for a year.

Revue de Médecine, Paris

40: 1-64 (Jan.) 1923

*Rôle of the Semicircular Canals. L. Bard.—p. 1.
*Present Status of Syphilitic Disease of the Lung. J. Lecaplain.—p. 28.
Recent Literature on Syphilis. Godlewski.—p. 55. Conc'n p. 121.

The Physiologic Rôle of the Semicircular Canals.—Bard summarizes his extensive research on the general physiology of the sense of gyration. He discusses means for testing the functional capacity of the semicircular canals, and interpreting the findings.

Syphilitic Disease of the Lungs.—Lecaplain remarks that every tenacious bronchitis or lung affection in a syphilitic requires immediate and vigorous specific treatment. Even when the lesion is tuberculous, it may be favorably influenced. Sputum is rarely examined for spirochetes, but diffuse tracheobronchial syphilis may be accompanied by a gummatous lesion in the lung, or sclerosis or mediastinitis. A tuberculous pleurisy may develop on a syphilitic soil. Chronic syphilomas in the lung are more common than acute lesions; sometimes the good general health in spite of symptoms simulating severe pulmonary tuberculosis may suggest the true diagnosis. In one of the two cases described, the first symptom had been pain in the region of the right mamma. Then came cough and dyspnea, both increased by exertion, and worse at night. The physical findings pointed to tuberculosis, but the positive Wassermann reaction and roentgenograms suggested treatment for syphilis; speedy recovery followed, although the Wassermann reaction is still positive, and the physical findings are not normal. The second patient was a man, aged 51, with symptoms of a sclerogummatous syphilitic lesion of the lung, with aortitis and mediastinal adenopathy. Specific treatment had a remarkably prompt and complete effect, even the Wassermann reaction becoming negative.

Schweizerische medizinische Wochenschrift, Basel

53: 393-416 (April 19) 1923

*Ossifying Periarthritis of Elbow. H. Vulliet.—p. 393.
*Glucose Treatment in Heart Disease. T. Büdingen.—p. 395.
Pathogenesis of Acute Pancreas-Fat Necrosis. R. Schweizer.—p. 400.
Treatment of Anemias. A. Alder.—p. 403.
*Dry or Irrigation Treatment in Otitis Media? E. Schlittler.—p. 405.
*Formation of Cysts in Spinal Ganglions. T. Watanabe.—p. 407.

Contusions of Elbow and Neoformation of Bone.—Vulliet demonstrates by three clinical histories that slight injuries may cause rapid formation of bone near the elbow, and greatly impair function. He proposes the term: ossifying periarthritis.

Metabolic Treatment of Heart (Cardiotrophotherapy) with Intravenous Infusions of Glucose.—Büdingen recommends infusion of a hypertonic solution of glucose in rheumatic polyarthritis, diphtheria, pneumonia and all postinfectious conditions causing a sensation of precordial pressure.

Dry Treatment or Irrigations with Boric Acid Solution in Otitis Media?—Schlittler prefers Schönemann's dry treatment with insufflations of an antiseptic powder to the irrigation method in inflammation of the middle ear.

Formation of Cysts in Spinal Ganglions.—Watanabe, in forty necropsies of 150, found cysts in the spinal ganglions.

Pediatria, Naples

31: 409-464 (April 15) 1923

Diagnostic Value of Pandy Reaction in Tuberculous Meningitis of Children. U. Provinciali.—p. 409.
*Blood Platelets and Coagulability in New-Born. A. Emmanuele.—p. 422.
Treatment of Hereditary Syphilis in Children. G. Milio.—p. 430.
Raynaud's Disease. C. Gallo.—p. 439.
Urticaria Pigmentosa. G. Sunseri.—p. 445.

Blood Platelets and Coagulability in the New-Born.—Emmanuele found that the number of blood platelets decreases in the first days of extra-uterine life. Premature infants have more platelets. The coagulation time becomes longer with the decrease of platelets. It is shorter in premature births, and longer in infants with hemorrhages.

Policlinico, Rome

30: 329-358 (March 12) 1923

Occult Tuberculous Fever. U. Arcangeli.—p. 329. Cont'd.
Treatment of Oxyuriasis with Arsphenamin. K. Hajós.—p. 334.
*Treatment Before and After Operations. P. Gilberti.—p. 335.
Report on an Antimalaria Campaign Near Rome. O. Ricci.—p. 337.

Treatment Before and After Operations.—Gilberti advises keeping the patient in bed a few days before operation. It may be well to prepare the patient with vaccine or serotherapy, or better yet, the two combined, but he warns that the operation should be planned so it will not come during the few days of the refractory phase that follows the first vaccination. He advises this combination of bed rest, dieting and means to induce antibody production whenever infection or suppuration is suspected.

30: 425-455 (April 2) 1923

*Posterior Surface Sign of Tumors. D. Taddei.—p. 425.
*Addison's Syndrome in Malaria. A. Fulchiero.—p. 426.
Modification of Fehling Test for Sugar. D. Maestrini.—p. 432.
Constipation Calling for Surgical Measures. L. Manginelli.—p. 433.
Conc'n.

The Sign of the Flat Posterior Surface with Tumors.—In the differential diagnosis of cold abscesses, benign tumors and cysts, Taddei tries to push the growth to one side and work his finger down to the bone or muscle on which it lies. This is impossible with an abscess, as it is too intimately connected with the tissues beneath to allow being pushed aside. It can be done with a benign tumor, and the posterior surface of the tumor found to be flat as it lies on a flat surface. A cyst is spherical.

Addison's Syndrome in Malaria.—Fulchiero's three patients presented apparently typical Addison's disease, but under treatment for malaria, and epinephrin, the Addison syndrome subsided, except the pigmentation. This persisted practically unmodified.

30: 457-488 (April 9) 1923

Opening Lecture of Dermatology Course. P. L. Bosellini.—p. 457.
*Cinchonin in Treatment of Malaria. P. Filippella.—p. 464.

Cinchonin in Treatment of Malaria.—Filippella gives details of twenty-three malaria patients treated in Carducci's service with cinchonin. In all cases of spring tertian malaria the febrile attacks were arrested by the first doses. It seems advisable to begin with the cinchonin and change to quinin only if this proves ineffectual, unless the symptoms call for very vigorous measures from the first. In one case of mixed spring and tropical tertian malaria, the former was arrested by the cinchonin, but the tropical persisted until quinin was given.

Riforma Medica, Naples

39: 361-384 (April 16) 1923

*Leukocyte Count with Echinococcus Cysts. C. Manassei.—p. 361.
Rat-Bite Disease in Italy. A. Pellegrini.—p. 363.
On Bauer's Interpretation of the Hereditary Transmission of Hemophilia. P. Mino.—p. 371.

Leukocyte Count in Casoni's Intradermal and Pontano's Subcutaneous Reaction in Patients with Echinococcus Cysts.—Manassei injected according to Casoni's method 0.3 c.c. of fluid from the echinococcus cysts of animals intracutaneously and 1 c.c. subcutaneously (Pontano's method). He observed that the eosinophils increased from 1.5 to 6 per cent. after these injections in thirteen patients with echinococcus cysts. In one patient with a suppurating cyst the reaction was negative.

39: 385-408 (April 23) 1923

*Technic for the Wassermann Reaction. N. Pane.—p. 385.
*Blood Grouping. P. Mino.—p. 386.
Mechanism of Formation of Spontaneous Hematomas in Leukemia. G. Jannelli.—p. 389.
Tuberculosis in Infants. A. Muggia.—p. 391.

Nonspecific Wassermann Reactions.—Pane obtained a positive Wassermann reaction in 100 per cent. of twenty-seven cases of syphilis in the tertiary stage when the serum had been freed from complement without heat. On the other hand, the reaction was positive only in 25 per cent. when the serum had been freed from complement by heating to 55 C. for thirty minutes. The reaction was constantly negative

when the serum was heated to 65 C. He remarks that the positive response to the test is connected with the presence of some substance which is destroyed by heat, and hence he insists that the test should be applied simultaneously with and without heat to different specimens of the blood serum.

Blood Grouping.—Mino asserts that by artificially increasing the globulin content of a serum we confer on the serum the property of pseudo-agglutination of the erythrocytes. This occurs when the serum naturally shows no agglutinating properties; erythrocytes pile up, but there is no true agglutination. The speed of sedimentation of erythrocytes is highest in serums containing much globulin. But true agglutination is entirely independent of this. All research done with a technic which excludes pseudo-agglutination confirms the accuracy of grouping in four groups and in four groups only.

BD: 409-432 (April 30) 1923

Insufficiency of the Left Ventricle. A. Coury.—p. 409.
*Action of the Liver on Fat. F. Galdi.—p. 411.
*Aphasia After Injury of Brain. Fiamberti and Filippini.—p. 416.
Influence of Prohibition in America on Mental Disease and Crime. M. Carrara.—p. 418.

Action of Liver on Fats.—Galdi presents evidence that it is possible to reveal insufficiency of the liver in respect to fats by the precipitation when 2 or 3 drops of blood serum are dropped into a 5 per cent. neutral solution of glycerin. A whitish cloud forms in their wake, like a spiral of smoke, which gradually settles to the bottom as a flaky precipitate. This test differs entirely from the test for blood dust, both in the mechanism of its production and its significance.

Aphasia from Injury of Brain.—The motor aphasia developed immediately after a stab wound at the foot of the third left frontal convolution. Three days later came facial paralysis and other symptoms of hematoma, but these retrogressed after a decompression operation. The aphasia persisted for months and only slowly subsided.

Revista de Medicina y Cirugía, Havana

28: 257-298 (April 10) 1923

Classification of Gastro-Intestinal Disturbances in Infants. A. Abalfi. —p. 257. Cont'd.
*Sympathetic Ophthalmia. Rodolfo and Rodolfo Julio Guiral.—p. 278.

Sympathetic Ophthalmia.—This article reports the complete cure of sympathetic ophthalmia in more than twenty cases seen in a year and a half. Treatment was with parenteral injection of the patient's own serum, according to Escomel's method of "integral autoserotherapy," except that the serum was not heated. The injections were made every day or second day, the dose 3 c.c. of the autoserum. The number of injections required varied; the improvement in the eye first affected is a good gage of the number required. The success of this autoserotherapy sustains the assumption of an anaphylactic basis for sympathetic ophthalmia. This assumption is further sustained by the fact that the patient seems to become immunized under the influence of the autoserotherapy, so that further operations or trauma on either eye fail to induce sympathetic ophthalmia afterwards.

Prensa Médica Argentina, Buenos Aires

9: 907-930 (April 10) 1923

*The Liver in Pulmonary Tuberculosis. P. J. Hardoy.—p. 907.
*Tuberculous Mastoiditis. A. Tarasido.—p. 912.
*Preparation of Tuberculous Labyrinth. R. Podestá.—p. 917. Cont'n.
*Technic for Biopsy. S. Mazza and M. Balado.—p. 919. Cont'n.
The Liver in General Asthenia. M. J. Barilari and D. Cifone.—p. 924.

The Liver in Pulmonary Tuberculosis.—Hardoy concludes from his experience that the functional capacity of the liver is the main element in the prognosis of pulmonary tuberculosis of every form and degree. It is also an indispensable guide in treatment; it would be a gross error to advise forced protein feeding or alcohol for patients with defective liver functioning. The use of drugs should also be based on the liver findings. He gives details of a number of cases to sustain these assertions; the urine was tested for urobilin and urochromogen, salts and bile pigments, and for glycuronuria by the Roger-Chiray test; while the blood was tested by the bleeding time, residual nitrogen and digestive hemoclastic crisis. He was surprised at the large proportion of positive responses to this last test in the tuberculous. The previous condition of the liver seems to be what determines the form and severity of the tuberculosis. In the torpid, nondestructive form, the liver is generally nearly or quite sound. The liver findings may vary from day to day in proportion to the flaring up of a tuberculous process.

Tuberculous Mastoiditis.—Tarasido reports two cases in children, aged 5 and 6. The disturbances had persisted after an ordinary mastoid operation, but a second more complete operation, which confirmed the tuberculous nature of the chronic process, brought about complete recovery. In both cases the mastoiditis had followed whooping cough.

Anatomic Specimens of the Labyrinth.—Podestá extols the advantages of Popoff's method of coating the membranous labyrinth with liquid petrolatum to protect it while the bone is being decalcified with acid. Perfect specimens of the internal ear can thus be obtained.

Biopsy.—The testes are discussed in this instalment of Mazza and Balado's long, profusely illustrated study of the technic for and the interpretation of the findings when fragments are excised for examination.

9: 931-956 (April 20) 1923

*Uricacidemia as Index of Kidney Function. C. Bonorino Udaondo and G. P. Goñalons.—p. 931.
Treatment of Neurosyphilis. Mariano Alurralde.—p. 933.
Catgut Made in Argentina. S. Mazza and M. Balado.—p. 940.
*Calcium Chlorid in Serositis. A. Navarro.—p. 948.

Uric Acid Content of Blood as Index of Kidney Function.—In the six cases of glomerular nephritis investigated, the uric acid content of the blood ranged from 0.056 to 0.175, with an average of 0.093 instead of the normal range from 0.03 to 0.05. The retention of uric acid did not parallel that of urea, which averaged 0.27. The cholesterol was within or close to normal range.

Calcium Chlorid in Treatment of Serositis with Effusion.—Navarro gave a thorough trial to calcium chlorid as advocated by Blum in treatment of tuberculous pleurisy with effusion. In 40 per cent. of his five cases the result was ideal; in 40 per cent. it was good, and in 20 per cent. not much benefit was apparent. The patients were on a salt-poor diet, and the drug was given in ten or fifteen teaspoonfuls during the day, each representing 1.5 gm. of calcium chlorid, at intervals of one and a half or two hours. His formula was: calcium chlorid and soluble starch, each 30 gm.; lemon jelly 100 gm. and distilled water, 20 gm. The best results were noted in the more acute cases. The suppression of thirst which is one of the features of this treatment seems to indicate important modification of metabolism of water. The absorption of the effusion is a kind of autoimmunization which has a decided curative influence, while it avoids the danger of infection from without which is liable when the effusion has to be tapped. About 75 per cent. of the effusion was absorbed in five or ten days, but the remainder took about three to six weeks.

Semana Médica, Buenos Aires

1: 729-780 (April 19) 1923

Opening Lecture of Pathology Course. J. J. Vitón.—p. 729.
Automatic Gag and Tongue Holder. L. Samengo.—p. 734.
*Venous Thrombosis from Overexertion. O. Ivanissevich.—p. 738.
Blocking Nerve to Upper Jaw. J. Ubaldo Carrea.—p. 744.
*Hypernephromas. R. G. Cabred.—p. 747.
*Glycosuria and Glycemia in the Pregnant. S. E. Bermann.—p. 764.
Mitochondria Considered as Bacteria. A. L. Herrera.—p. 772.

Venous Thrombosis from Overexertion.—A young woman applied for relief from pains in the humeral vessels, subacute edema of the entire arm, and slight cyanosis. The vein in the upper arm and axilla was palpable as a hard cord. The condition had developed during the ten days after severe physical exertion in using the right arm. The same clinical picture was presented a few months later by a man aged 53 after a similar overexertion. A sharp pain in the anterior wall of the right axilla was the first symptom. It did not spread, and soon subsided, being followed by a sensation of heaviness and numbness in the whole arm. Recovery in both cases was soon complete under rest, iodids and hot fomentations. In another case a hematoma developed in the

scrotum after lifting a heavy weight. The diagnosis at first had been strangulated hernia, but the hematoma continued to spread toward the hypogastrium and iliac crests. It stopped spreading the fourth day, and five days later the vaginalis was punctured and the fluid aspirated was injected subcutaneously. The man was discharged much improved six days later. In another case, the man, aged 52, felt a sudden pain in the scrotum on lifting a weight, and a hematoma developed, with evidences of rupture of a vein which compelled operative treatment.

Hypernephromas.—This long illustrated study of these tumors is based on twelve cases. Cabred asserts that this type of neoplasm has probably been mistaken for a true kidney tumor in many recorded cases. Certain epitheliomas, adenomas and the majority of endotheliomas are true hypernephromas. Benign or malignant, they form the great majority of kidney tumors.

Alimentary Glycosuria in the Pregnant.—Bermann found that ingestion of 100 gm. of glucose almost always induced glycosuria in the pregnant. This is more frequent and more constant in the first and third three months of the pregnancy. In the thirty women examined, the glycosuria was moderate and did not persist for more than a week after delivery. The sugar content of the blood does not rise unless there is concomitant liver or endocrine derangement.

Deutsche medizinische Wochenschrift, Berlin

49: 467-500 (April 13) 1923

Pathology and Treatment of Kidney Disease. Umber.—p. 467. Cont'n.
*Therapeutic Significance of Thymus. Boenheim.—p. 469.
Analysis of Roentgen Pictures of Chest. G. Herrnheiser.—p. 472.
Treatment of Syphilis with Bismuth. H. T. Schreus.—p. 473.
*Treatment of Epidemic Encephalitis. Buss.—p. 476.
Psychotherapy of Asthma. E. Marx.—p. 477.
Treatment of Asthma. A. Pritzel.—p. 478.
*Infant Feeding. A. Japha.—p. 479.
Ascaridiasis in an Infant. H. Bischoff.—p. 479.
Surgery of Tonsils. G. Finder.—p. 481.
Report of the Official Commission on Friedmann's Vaccine.—p. 483.
Treatment of Whooping Cough. A. Schmuckler.—p. 484.
Determination of Nitrogen in Urine and Blood. F. Utz.—p. 485.
Stethoscope for Korotkow's Determination of Blood Pressure. J. Bamberger.—p. 485.
A Cannula for Punctures. L. Mendlowicz.—p. 486.

Therapeutic Significance of Thymus in Internal Medicine.—Boenheim recommends treatment of goiters (including exophthalmic) with a combination of iodin and thymus preparations. Thymus increases the appetite in tuberculous patients.

Treatment of Epidemic Encephalitis with Acriflavine.—Buss reports perfect results with intravenous injections of acriflavine in nine cases of encephalitis, including a case of postencephalitic parkinsonism. He injected daily 5 to 10 c.c. of a 0.5 per cent. solution for six or eight days. His patients were all women. He is chief of the St. Joseph-Stift at Bremen.

Infant Feeding.—Japha finds that the use of so-called minimal feeding can lead to wrong treatment. There must be individualization; the feeding should be optimal, not minimal. Albumin milk is an excellent remedy in diarrhea.

49: 501-534 (April 20) 1923

*Physiologic Importance of Brain-Stem. R. Magnus.—p. 501.
Epidemiology of Sleeping Sickness. F. K. Kleine.—p. 505.
*Quinin Resistant Lipases in Human Blood. H. Simon.—p. 506.
Function of Kidney in Nephrolithiasis. J. Rummelsburg.—p. 507.
Contralateral Dry Pleuritis with Spontaneous Seropneumothorax. E. Basch.—p. 508.
*Scarlet Fever as an Anaphylactic Phenomenon. S. Meyer.—p. 509.
*Diagnosis of Echinococcus Disease. Blumenthal and Unger.—p. 512.
Limits of Error of the Spectrometric Method of March, Staunig and Fritz in Roentgenology. K. Staunig.—p. 514.
Further Experiences with Linser's Injections in Syphilis. R. Abimélech.—p. 515.
Dermatological Diagnosis. M. Joseph.—p. 516. Cont'n.
Diffuse Carcinosis of Pia Mater After Operation of Carcinoma of Stomach. J. Alsberg.—p. 518.
*Oscillatory Determination of Blood Pressure. Engelen.—p. 519.
Determination of Blood Volume Before, During and After Delivery. W. Neubauer.—p. 520.
Medical Aspects of the Proposed German Criminal Law of 1919. Weygandt.—p. 521.

Significance of Brain-Stem for Tonus of Muscles and Position of Body.—Magnus describes the results of his method of investigating the function of the central nervous system: instead of removing parts starting from the cortex, he proceeds proximately from the medulla oblongata.

Clinical Use of Quinin Resistant Lipases in Human Blood.—Simon found lipases resistant to quinin not only in affections of the liver, but also in other patients. Rona's investigations on different lipases of blood are only an experimental basis for further researches.

Scarlet Fever as an Anaphylactic Phenomenon.—Meyer believes that streptococci are not the direct cause of scarlet fever. They act only as sensitizers and provokers of an anaphylactic shock. Eosinophilia is one of his reasons for this assumption.

Serologic and Clinical Diagnosis of Echinococcus Disease.—Blumenthal and Unger describe their technic, and mention especially the necessity of a negative control with a strongly positive syphilitic serum. Eosinophilia with negative complement fixation speaks against the echinococcus.

Supramaximal Amplitudes in Oscillatory Determination of Blood Pressure.—Engelen finds that the supramaximal oscillations of Pachon's tonometer are a good indication of the energy of contractions of the left ventricle.

Klinische Wochenschrift, Berlin

2: 669-724 (April 9) 1923

*Breathing Function, Chest and Constitution. L. Hofbauer.—p. 669.
Dyspnea in Cardiac Pulmonary Stasis. W. Frey.—p. 672.
Roentgenologic Diagnosis of Duodenal Ulcers. H. H. Berg.—p. 675.
*Hypersensitiveness of Micro-Organisms. Schnabel and Kasarnowsky.—p. 682.
Significance of Cells of the Walls of Vessels in Pathology. G. Herzog.—p. 684. Cont'd.
Influence of Chronic Treatment with Arsenic on the Respiratory Metabolism. P. Liebesny and A. Vogl.—p. 689.
Intubation of Duodenum. H. Kahn.—p. 692.
Action of Parenteral Injections of Blood and Organ Emulsions from Animals Irradiated with Ultraviolet Rays. E. Tryfus.—p. 694.
*Chlorin and Phosphoric Acid Ion and Spasmophilia. Röckemann.—p. 695.
*Action of Ferments. R. Ehrenberg and E. Loewenthal.—p. 696.
Simple Method for Determination of Alveolar Carbon Dioxid Pressure. J. Holló and S. Weisa.—p. 697.
Necrosis of Skin After Repeated Injection of Diphtheria Antitoxin. C. Hegler.—p. 698.
*Diagnosis of Primary Polycythemia. F. Gaisböck.—p. 699.
Pancreatic Extract in Diabetes. A. Grevenstuk.—p. 704.

Breathing Function, Chest and Constitution.—Hofbauer believes that the "phthisic habitus" is due to an inherited insufficiency of breathing. The abnormal length of the lumbar part of the spine in these subjects is not due to increased growth, but is caused by a disproportion with the inhibited development of the thoracic part. Unilateral respiratory insufficiency causes scoliosis. Correct breathing prevents these abnormal conditions, and should be taught in schools.

Hypersensitiveness of Micro-Organisms in Infected Mice.—Schnabel and Kasarnowsky experimented on mice infected with pneumococci and injected with weak solutions of ethylhydrocuprein. In analogy with Schnabel's results in vitro the strains cultivated from the animals showed a marked oversensitiveness toward the drug. The most striking results were obtained with cultures taken about three hours after inoculation. In the cultures taken after twenty-four hours, the strain was less sensitive than the untreated control. The sensitiveness was specific, since the strains were rather more resistant against mercuric chlorid than the controls. These experiments may be valuable for the theory and technic of chemotherapy.

Mutual Relations Between Chlorin and Phosphoric Acid Ion and Their Significance for the Problem of Spasmophilia.—Röckemann observed in an infant edema and tetany after injection of phosphates. The spasms stopped with the disappearance of the edema.

Action of Ferments.—Ehrenberg and Loewenthal bring new examples of the synthetic phases during trypsin digestion. Some experiments seemed to indicate that trypsin may become more specific for the protein it acts on during protracted digestion. This may be of importance for the explanation of d'Herelle's phenomenon.

Diagnosis and Treatment of Primary Polycythemia.—For this diagnosis, Gaisböck requires an absolute increase in erythrocytes—including increased total volume of blood. The

best treatment is irradiation of bones. Irradiation of spleen and liver is of no use. The therapeutic and the toxic doses are not far apart.

Medizinische Klinik, Berlin

19: 487-522 (April 15) 1923

*Edema in Pregnancy. L. Adler.—p. 487.
Determination of Guilt in Apparently Unknown Cause of Roentgen Injuries. H. Holfelder.—p. 491.
*Management of Weak Infants. P. Grosser.—p. 495.
Organic Injury of Nervous System from Lightning. Herrmann.—p. 497.
Roentgen Treatment of Lymphogranuloma. F. Kanzow.—p. 498.
Combined Alternating Treatment of Syphilis of Prostitutes with Neo-Arsphenamin, Silverarsphenamin and Mercury. Brinckmann.—p. 500.
Ascarid in the Abdominal Cavity. F. Freudenthal.—p. 501.
Fornet's Tuberculosis Reagent. Kellner.—p. 503. Comment. Christensen.—p. 503.
Death from Pneumonia Not Due to Injury. H. Engel.—p. 504.
Dysmenorrhea. E. Runge.—p. 506.
Survey on Gynecology. W. Liepmann.—p. 509.

Edema in Pregnancy.—Adler deals with the different causes of edema in pregnancy. If due to acute nephritis, the pregnancy need not be interrupted. In chronic nephritis, it is permissible to try to carry the child to term with a diet poor in chlorids. If the symptoms become more severe (increase of edema, headaches, etc.) therapeutic abortion is indicated. Affections of the heart, except mitral stenosis with beginning edema, are not an indication for abortion if they can be successfully treated. Extensive local edema of the external genital organs should be treated by scarifications.

Management of Weak Infants.—Grosser is opposed to the use of three times diluted milk in new-born, as well as to half-milk with only small addition of sugar. Weak children need human milk.

Mitteil. a. d. Grenzgeb. d. Med. u. Chir. Jena

36: 1-150, 1923

*Origin and Structure of Gallstones. B. Naunyn.—p. 1.
*Pneumoventriculography in Brain Disease. W. Denk.—p. 9.
*Spontaneous Recovery from Subacute Atrophy of Liver. H. Brütt.—p. 29.
Gastroscopy. W. Sternberg.—p. 41.
*Elimination of Salt and Water in Stomach Affections. E. F. Schlesinger.—p. 47.
Skin Reaction and Complement Fixation in Actinomycosis. J. Walker.—p. 55.
Importance of Spastic Conditions in Gastro-Intestinal Pathology. J. Kaufmann.—p. 96.
Elimination of Water in Abdominal Affections. Gundermann and Düttman.—p. 113.
Parasitic Etiology of Goiter. Wegelin.—p. 134. Reply. L. Merk.—p. 139.
Frequency and Cause of Primary Carcinoma of the Lungs. P. Hampeln.—p. 145.

Production of Gallstones.—Naunyn presents further evidence of infection as the primary incentive to gallstone production, especially in the intrahepatic ductlets.

Encephalography in Diagnosis of Brain Affections.—Denk has insufflated air or oxygen into the spaces of the central nervous system in thirty-two cases for diagnostic purposes. His two fatalities convinced him that it is safer under certain conditions to insufflate the air or oxygen directly into the ventricle rather than by lumbar puncture, when the cerebrospinal fluid is under high pressure. In these circumstances, he advises puncturing the ventricle first, and thus relieving the pressure, before attempting to inject oxygen by lumbar puncture.

Subacute Atrophy of the Liver.—Brütt cites from the records two cases of recovery when the symptoms had indicated atrophy of the liver, and adds a personally observed case to the list. The age in the three cases ranged from 18 to 26. There does not seem to be any essential difference between chronic atrophy of the liver, ordinary cirrhosis and syphilitic cirrhosis. Treatment can be only symptomatic. With coincident syphilis, arsphenamin must be given cautiously, as instances are known in which acute atrophy of the liver developed in connection with a course of arsphenamin treatment. The shock from even an exploratory laparotomy may be more than the patient can stand.

Elimination of Salt and of Water in Disease of the Stomach.—Schlesinger's findings were irregular, and without diagnostic import.

Münchener medizinische Wochenschrift, Munich

70: 451-484 (April 13) 1923

Treatment of Malignant Tumors. E. Kreuter.—p. 451.
Dangers of Roentgen Treatment and Their Prevention. Sippel.—p. 455.
Roentgenologic Castration in Men. E. Markovits.—p. 457.
Measuring of Wave Length of Roentgen Tubes for Treatment. P. P. Gotthardt and A. Wertheimer.—p. 459.
Assisting in Operations. E. Lexer.—p. 460. Idem. A. Krecke.—p. 461.
*Treatment of Tuberculosis by Pneumothorax. Unverricht.—p. 461.
Adhesions After Gynecologic Laparotomies. Haug and Heudorfer.—p. 463.
Intrapleural Chemotherapy of Pulmonary Tuberculosis. P. Heilmann.—p. 468.
Atypical Coloboma of Iris in Father and Congenital Aniridia in His Children. Veihagen.—p. 469.
Moistening, Warming and Washing of the Anesthetizing Vapors. H. v. Baeyer.—p. 470.
Reducing Scale of Roentgenogram. Stumpf.—p. 470.
"Meinicke's Reaction for Serodiagnosis of Syphilis." E. Meinicke.—p. 471.
*Early Diagnosis of Carcinoma of Tongue. W. Kümmel.—p. 471.

Observations and Results of Treatment of Pulmonary Tuberculosis by Pneumothorax.—Krecke reports 40.2 per cent. clinical recoveries and 50 per cent. deaths among seventy-seven well-to-do patients. From the poorer classes treated in the dispensary, 32.3 per cent. recovered clinically and 59 per cent. died from tuberculosis. Bacilli disappeared from the sputum in 38 per cent. of the first group, and 29 per cent. of the second.

Early Diagnosis of Carcinoma of Tongue.—Kümmel emphasizes the necessity for palpating the tongue, because the tumor may be under the mucosa. Soft fibromas or lipomas are not as hard as cancer, and have definite limits. Some epitheliomas may have also sharp limits, but they are usually ulcerated. A submucous tumor in the middle line on the base of the tongue may be a goiter. Tuberculosis, syphilis and actinomycosis may simulate a cancer, especially before ulceration. A syphilitic gumma is very important for diagnosis because of its curability. Yet he warns against considering a slight amelioration after treatment as a proof of the syphilitic nature of the tumor. Combinations also occur. Great pains are typical in deep carcinomas. Carcinoma developing from leukoplakia is not very obvious, but should be easily diagnosed, if the physician would think of the possibility. Decubital ulcers must have their cause in rough teeth; they disappear with removal of the cause.

Wiener klinische Wochenschrift, Vienna

36: 303-320 (April 26) 1923

Gonorrhea of Urethra and Bladder in Women. R. Franz.—p. 303.
Abdominal Stasis. L. Hess.—p. 306. Cont'd.
Clinical and Morphological Types of Goiter. E. Gold and V. Orator.—p. 309.
Action of Sodium Chlorid. M. Engländer.—p. 310.
*Rectal Ulcer. W. Zweig.—p. 310.
Alleged Malpractice in Complete Rupture of Uterus. J. Reder.—p. 311.
General Comment on the Preceding Article. L. Knapp.—p. 314.

Rectal Ulcer.—Zweig observed five cases of bleeding ulcer of the rectum after influenza. Rectoscopy is essential for diagnosis. The treatment consists in enemas of gelatin or olive oil, with some antiseptic.

Zentralblatt für Gynäkologie, Leipzig

47: 657-704 (April 28) 1923

*Pregnancy with Cancer of the Uterus. B. Schweitzer.—p. 657.
Criticism on the Kjelland Forceps. K. Fink.—p. 668.
Statistics of Febrile Abortion. F. Peyser.—p. 684.
Old and New Views on the Birth Mechanism. H. Sellheim.—p. 691.
"Twisting of Ovarian Cysts on Their Axis." Pulvermacher.—p. 699.
Significance of Corpus Luteum for Female Organism. J. Novak.—p. 701.

Pregnancy with Cancer of the Uterus.—Schweitzer has had the unusual opportunity of observing 11 cases of cancer associated with pregnancy: Young women are not subject to cancer, as a rule, and elderly women do not become pregnant. His patients had borne from 3 to 14 children, an average of seven. The pregnancy with cancer followed very soon after a previous pregnancy. In 6 of the 11 cases, hemorrhages were first observed during the pregnancy. In spite of this fact, Schweitzer thinks that in the majority of the cases the cancer was primary and the pregnancy secondary. Cancer in pregnancy produces very slight hemorrhages; they may

even be entirely lacking. The early symptoms referred to by Zweifel deserve careful attention—a yellow discharge and hemorrhages after coitus or lavage. During labor, as the cancer tissue is not elastic, dilatation of the cervix is difficult. The result will depend on the size of the cancer. During the puerperium, there is danger of pyogenic infection owing to the highly virulent streptococci in the cancer. The growth of the cancer seemed to be accelerated by the pregnancy but the malignancy was not increased. Cancer during the puerperium is much less amenable to curative treatment than cancer in pregnancy. Cancer is diagnosed much more frequently during the first year post partum than during pregnancy. The prognosis in cancer with pregnancy is always grave, for both mother and child. Sarwey's early figures showed 43.3 per cent. mortality, but with the Wertheim operation they were only 7.5 per cent., though Aulhorn figures 10 per cent. In Schweitzer's 8 cases in which operation was performed a primary cure was effected—in 6 by the Wertheim operation. The earlier the operation during pregnancy, the better the final results. In operable cancer of pregnancy, an immediate radical operation by the Wertheim method or by the combined Wertheim-Zweifel procedure is indicated. Irradiation should also be considered, especially, prophylactic postoperative irradiation. Irradiation of a uterine cancer causes hardening of the cervix, which necessitates delivery by cesarean section.

Casopis lekaruv ceskych, Prague

62: 165-192 (Feb. 17) 1923

J. Hnatek. Obituary. Libensky.—p. 165.
Contamination and Self-Cleaning of Rivers. M. Kredka.—p. 167.
*Tight-Rope Walking Gait in Hysteria. K. Henner.—p. 170.
Mixed Ovarian Neoplasm. O. Bittmann.—p. 172.
Epidemic of Hemeralopic Xerosis of Conjunctiva. M. Bondy.—p. 177.
Climate of Dubrovnik. V. Naprstek.—p. 179.
Twort-d'Herelle Phenomenon. J. Cancik.—p. 183.
New Opinions About Menstruation. J. Pazourek.—p. 186.

Tight-Rope Gait in Pithiatism or Simulation.—Henner observed in several hysteric patients that their way of walking was peculiar: They put the heel of one foot in front of the toe of the other, and the steps were faltering. The impression was that of a person walking on a tight rope. He proposes this as a name for the sign, and points out that persons with organic disturbance impairing the gait usually walk with a broad base to maintain their balance.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 1613-1724 (April 21) 1923

*Eunuchoidism from Dermoid Cyst. M. Elzas.—p. 1614.
Present Status of Insulin. A. Grevenstuk et al.—p. 1630.
*Herpes Zoster and Chickenpox. C. De Lange.—p. 1634.
Citrate Solution Must Be Neutral for Transfusion. Tervaert.—p. 1640.
*Differential Diagnosis of Meningitis. D. J. Beck.—p. 1641.
*Differential Diagnosis of Smallpox. J. Kuiper.—p. 1644.
Acute Necrosis of Pancreas in Parturient. Klumper.—p. 1655.

Eunuchoidism from Dermoid Cyst.—Elzas successfully removed the dermoid cyst from the mediastinum of the man, aged 28. It measured more than 6 by 8 by 11 cm. and seemed to consist mainly of ovarian tissue. The eunuchoid development was evidently due to the internal secretion of this teratoid tissue as masculine characters developed after its removal, hair on the body and beard, but the genital organs have shown no change. In the sixty-nine cases of dermoid cysts in the mediastinum which he has found on record, the teratomas seem to have started to grow at puberty. In his case, the biologic test for echinococcus cyst was positive at first, but veered to negative after expulsion of a few ascarids.

Herpes and Varicella.—De Lange found the complement fixation test with varicella antigen positive in a child with herpes zoster and in two with varicella, while it was negative in healthy controls and in a case of lingual herpes. The cases all occurred in one month in an institution. Further tests with a less concentrated extract of varicella crusts all gave a negative response. She concludes that herpes zoster can be induced by varicella virus, and cites instances of nervous complications of varicella which confirm its affinity for the nervous system.

Differential Diagnosis of Meningitis.—Beck declares that lymphocytosis is always accompanied by a pronounced Nonne reaction in tuberculous meningitis.

Smallpox.—Kuiper remarks that the Netherlands has been free from smallpox for three years but adds that this is more from luck than wisdom. The differential diagnosis is described.

1: 1725-1840 (April 28) 1923

*Writing of Medical Articles. G. van Rijnberk.—p. 1729.
The Hospital and Its Medical Staff. D. Schoute.—p. 1732.
The Physiologic Phenomena During Myoclonia. L. J. J. Muskens.—p. 1737.
*Heredity from Standpoint of Psychiatry. J. Lobstein.—p. 1753.
*Opposition to Irradiation of Myoma. L. F. Driessen.—p. 1760.
Case of Diabetes with Insulin Treatment. L. Polak Daniels and J. Doyer.—p. 1766.
Ileus with Necrosis from Impacted Piece of Orange Peel. D. Meyer Levy.—p. 1775.
Consultation Dispensaries for the Tuberculous. J. Lankhout.—p. 1791.
Adenoma Sebaceum. W. L. L. Carol.—p. 1811.

The Writing of Medical Articles.—Previous instalments of van Rijnberk's advice to medical writers were summarized, April 28, 1923, p. 1280.

Heredity in Mental Disease.—Lobstein reports dementia praecox in four boys and one girl of a family of seven children. The two other children died before puberty; preceding generations did not present exceptional prevalence of mental affections.

Radiotherapy of Uterine Myomas.—Driessen extols the advantages of roentgen-ray treatment for myomas of moderate size. He has applied it in 56.4 per cent. of his 314 cases since 1914. Operative measures were advised in 21 per cent. and there have been no deaths.

Ugeskrift for Læger, Copenhagen

85: 387-404 (May 31) 1923

Sterilization of Rubber Gloves, etc., by Formaldehyd-Vacuum Method. L. E. Walbum.—p. 387.
Arc Light Treatment of Dermatitis. S. Lomholt.—p. 390. Conc'n.
*Insulin for Scandinavian Countries. A. Krogh.—p. 392.
*Intravenous Injection of Camphorated Oil. Fabricius.—p. 393.
Periodic Paroxysmal Tachycardia. E. Lassen.—p. 395.
The Sickness Insurance Law. K. K. Steincke.—p. 397.

Insulin Production in Denmark.—Krogh says that the highly developed swine industry has given Denmark natural advantages for insulin production, since a uniform pancreas material can be obtained under veterinarian control in a way that practically excludes infection. The difficulty in using swine pancreas, because of the large fat content and extremely potent trypsin, has been practically overcome, and production of insulin on a large scale at the insulin laboratory will begin as soon as the necessary technical equipment has been installed. The price at the factory has been tentatively fixed at 20 Danish øre (about 5 cents) per Toronto unit. Hagedorn is still in charge of the laboratory, and insulin enough to treat one patient has been offered to seven leading specialists in the three Scandinavian countries, with promise of more later; six have accepted the offer. His experiences with insulin treatment have been very encouraging. The attempts to use fish pancreas proved disappointing; it seems to be impossible to procure fish glands in sufficient regular quantities, and in a condition rendering them fit for producing insulin.

Intravenous Injection of Camphorated Oil.—Fabricius-Møller shows by report of two deaths that intravenous injection of camporated oil is not free from danger. A woman, aged 55, who, about three weeks before had undergone an operation for gallstones, developed phlebitis with dyspnea, and was given a subcutaneous injection of 1 c.c. camphorated oil, and an intramuscular injection of 0.5 c.c. of a digitalis extract, followed by intravenous injection of the same amounts of camphorated oil and the digitalis, and soon thereafter by the death of the patient. Necropsy showed a large embolus in the pulmonary artery with fat emboli in the lung tissues, proving that even so small a quantity of camphorated oil may cause many kinds of emboli with occlusion of capillaries. The condition of the other woman, aged 31, was serious. After intravenous injection of 5 c.c. of camphorated oil the pulse improved, but in eleven hours the lung capillaries were full of fat emboli, and necropsy showed edema of the lungs attributed to the oil injection, the stethoscope before the injection having shown normal conditions in this respect.